

## THE BALL AUTOMATIC CUT-OFF ENGINE.

PICTURES of James Watt often represent him as a boy sitting near a stove watching the rise and fall of the lid on a tea kettle boiling on the fire. This, in connection with many stories and descriptions have perpetuated the idea that Watt was really the inventor of the steam engine. But modern researches have proven abundantly how fallacious it is to attribute the discovery of this most important factor of civilization to one man alone. Like the majority of great discoveries, the steam engine is the result of many centuries of study on the part of different thinkers; one making an improvement here and another there; all trying to have an engine capable of doing a maximum amount of work at a minimum cost.

Applications of scientific principles have progressed of late so rapidly, that doubts are often entertained whether the modern type of steam engine is capable of any further improvement, or whether it has reached the limits of perfection. Furnaces, boiler, the various parts of the engine, have all received the most careful attention and an immense amount of brain work combined with mechanical skill have been expended to make the modern engine the most efficient aid to man. It is a singular fact that although no part of the steam engine has received more thought than the governor, very little has been accomplished, and the theoretic defect of Watts' fly ball governor exists in every form and in nearly the same degree. Improved construction and reduced friction have bettered the results somewhat, but the defective theory of the first is still the theory of the last, and the steam engine governor, instead of preventing a change of speed of the engine, is simply a device for recording the changes of speed after they have taken place, this record being the changed steam supply, and in every case the position assumed by the governor is simply the result of a changing speed of the engine, but this latter must be made first before the governor can respond.

Under some circumstances and with some kinds of work this variation of speed is not a serious matter, but in most cases a uniformity of speed is desirable, and in many cases it becomes an absolute necessity, and it cannot be denied that in any case with all other things equal, the engine which maintains the most uniform speed does its work the most economically and satisfactorily. The principle of the centrifugal governor has remained unchanged since first applied by Watt. As long as the same speed is kept up by the engine the centrifugal effect produced on the governing device remains unchanged, and the supply of steam into the cylinder is the same. But a variation of steam pressure or load reacts on the speed of the engine and the change has its effect on the governing apparatus, which causes it to readjust the supply of steam. If the speed is increased, the supply is diminished, but the speed is not reduced exactly to its former rate, because in that case the governor

would again assume the same position it had before the steam supply was reduced, and error which should act by the variation of the load itself, and not by the change

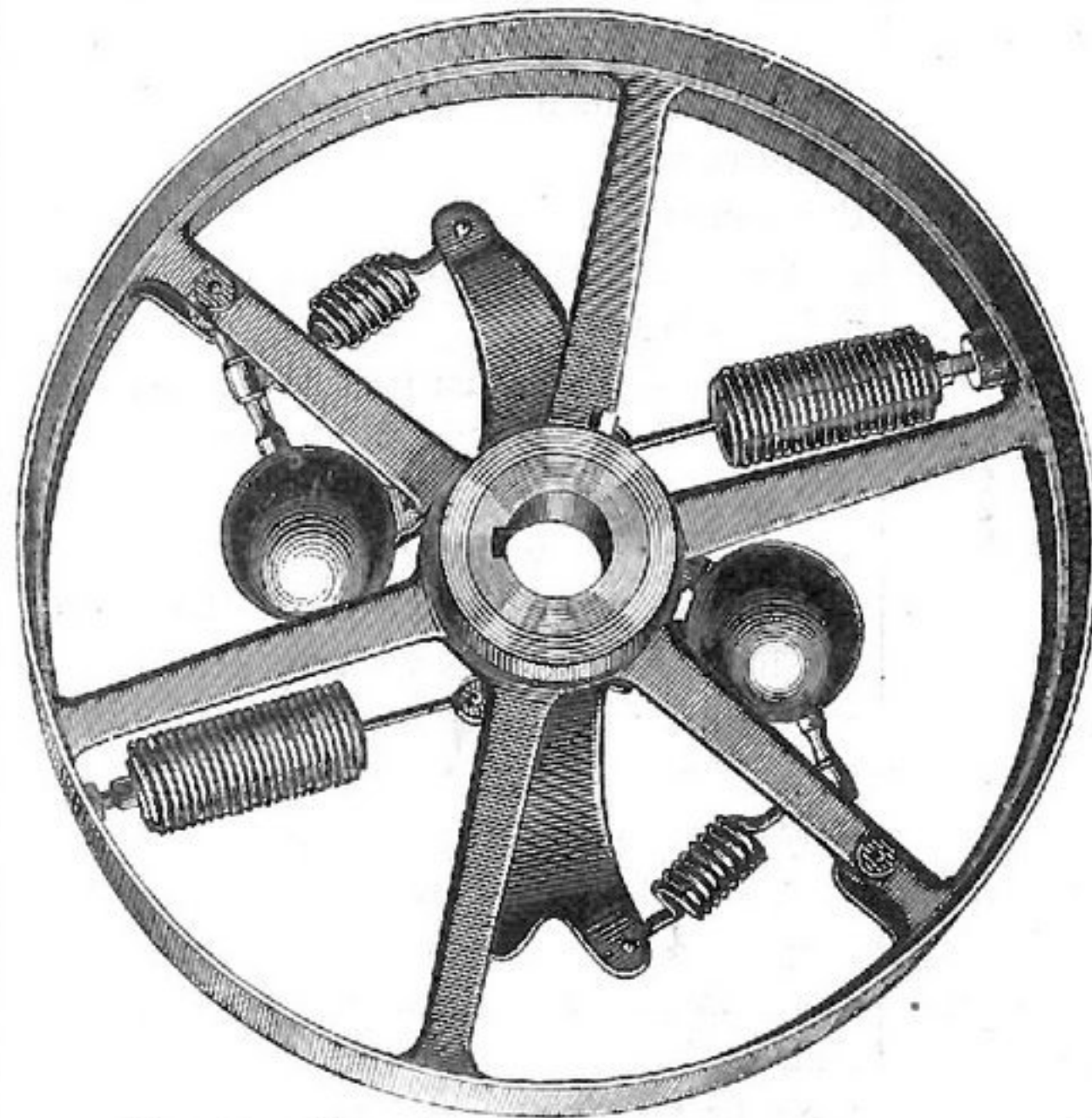


FIG. 1. THE BALL GOVERNOR.

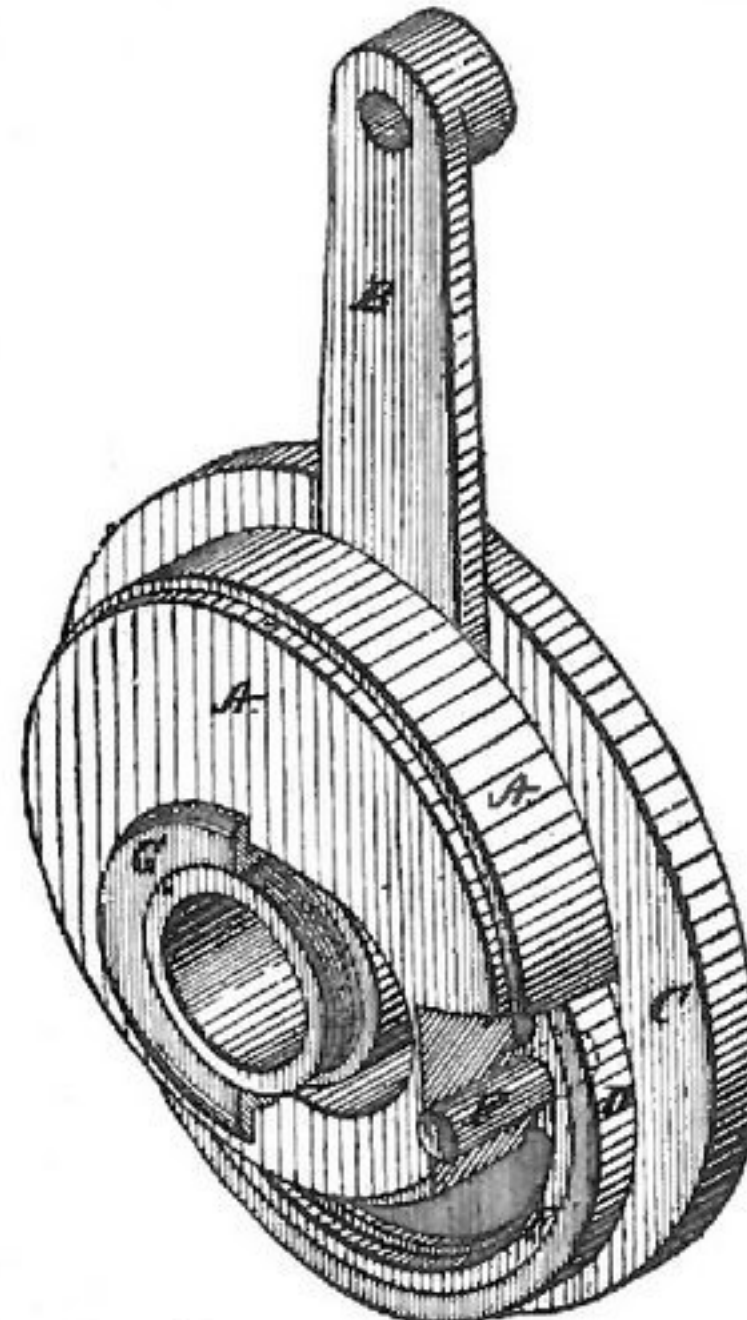


FIG. 2. GOVERNOR ECCENTRIC.

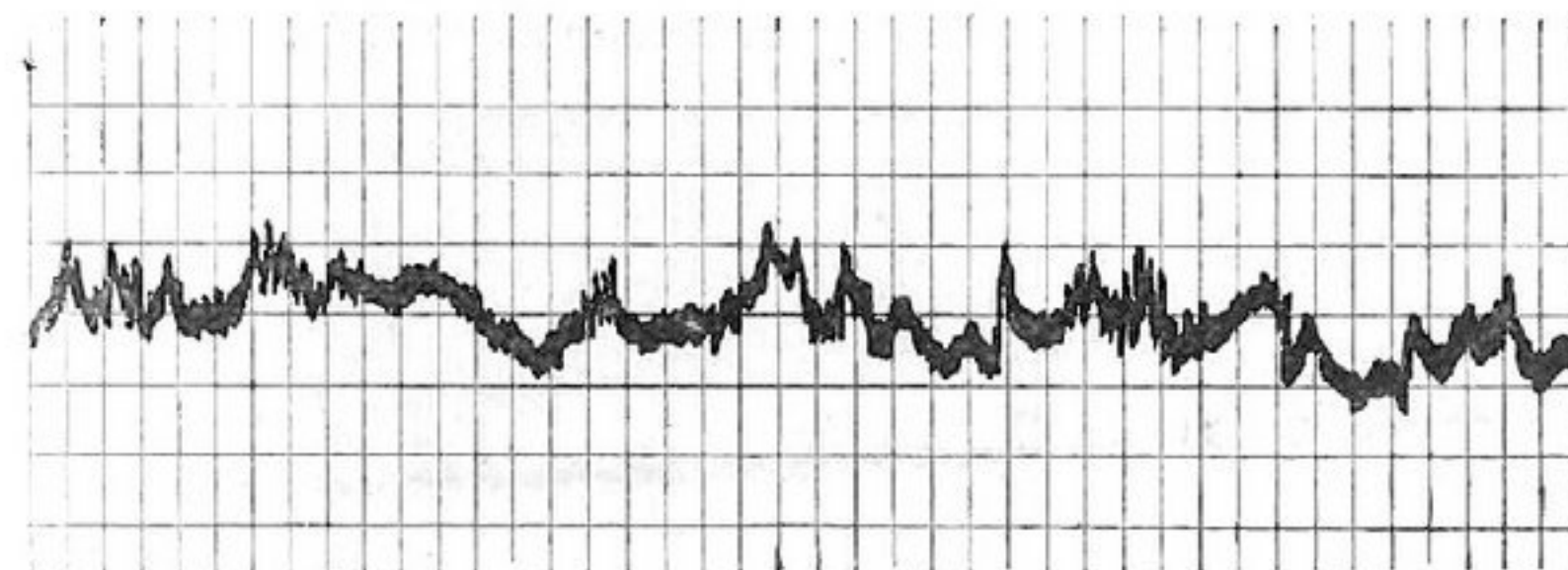


FIG. 3.

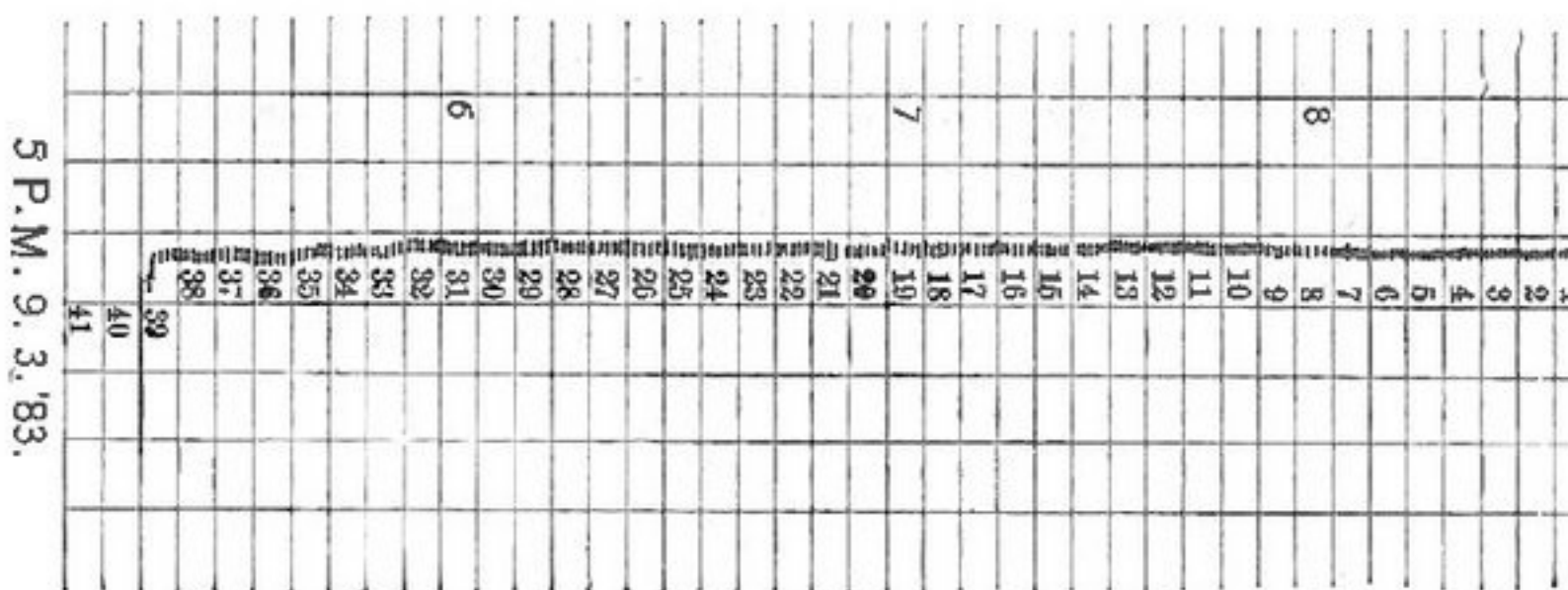


FIG. 4.

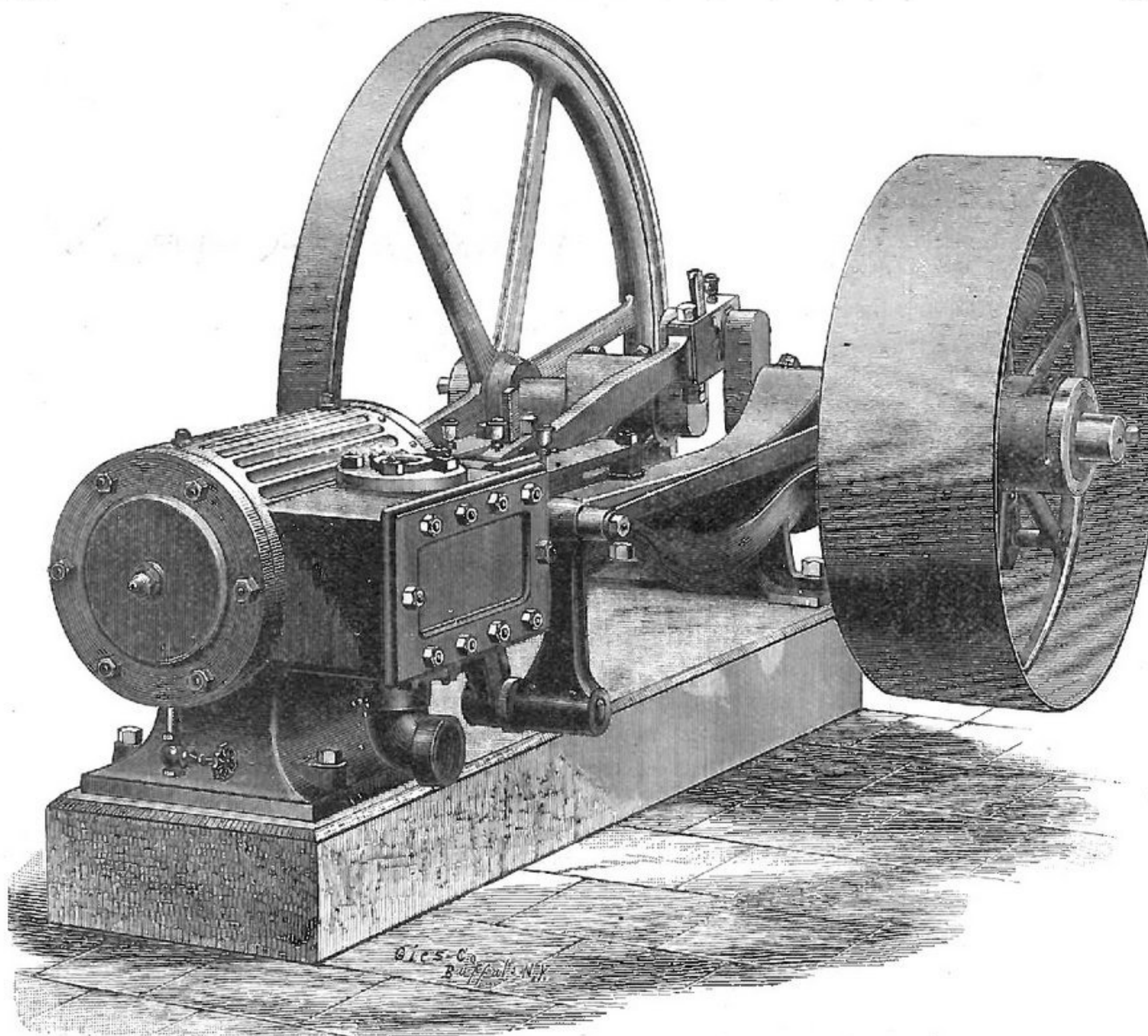


FIG. 5. THE BALL AUTOMATIC CUT-OFF ENGINE.

if the position is again the same, the supply of steam would also be the same. This is an important point to remember. A gov-

ernor of speed has long been considered a desirable invention by engineers, but its practical application has but recently been demon-

strated by Mr. F. H. Ball, of Erie, Pa., in the Ball Engine Co.'s new automatic cut-off engine, of which we give the following brief description with illustrations:

Fig. 5 gives a good idea of the engine. The bed is of that self-contained compact form which insures stiffness and strength with economy of floor space. The two pillow-blocks for the crank-shaft form a part of the bed and they are brought very close to each other, leaving only sufficient space between for the disc-crank. The bearings, which are made ample, have their caps placed at an angle from the horizontal. The cylinder, which is short compared with its diameter, as is the practice in high-speed engines, is overhung from the bed and held in place by bolts passing through a turned flange. This makes it readily detachable and at the same time permits free expansion. The crosshead has an ample wearing surface in the guides, which are carefully aligned with the cylinder. This wearing surface of the guides is C-shaped on each side. The crosshead, which is cast in one piece, forms two slides, which are disposed in a horizontal plane carefully fitted to the C-shaped surface of the guides. This C-shaped form of guide is well calculated to maintain the alignment perfect, and the large wearing surfaces which it affords insures coolness during long runs. These guides are lubricated by means of visible-feed oilers. The top of the frame is cut away as if to leave room for these oilers, a web of metal being left at the front end of the guides. The purpose of this web is evidently to bind the two guides more firmly together. The connecting rod has a babbit bearing at the crank end, but is provided with brasses at the crosshead end. Both of its bearings are lubricated by a movable oiler, which scrapes drops of oil at each stroke from a wick, upon which drips the oil of a stationary oiler.

The eccentric is lubricated by means of a flattened funnel, which catches the oil dripping from a stationary oil-cup. One of the pulleys on the crank shaft is intended as a kind of fly-wheel, the power being taken from the other pulley, which is loose on the crank shaft and receives its motion only through springs, which yield in proportion with the load, the relative motion being utilized so as to control the eccentric, and thus vary the throw of the valve, which receives its motion from the eccentric by an intermediate rocking arm, as shown in Fig. 5. A single valve admits and exhausts the steam at either end of the cylinder and the point of cut-off is determined by the range or "throw" of the valve, which is controlled by the variable eccentric. To distinguish this class of engines from other types, like the Corliss, which has valves for admitting and valves for exhausting the steam, they are called "single valve automatic" and this class includes almost all the high-speed automatic cut-off engines. The single valve is eminently applicable in engines of high-speed, not only because it lessens complication, but because of the manner in which it supplies the steam to the cylinder when controlled as above. It permits that coincident, inverse relation

between expansion at the steam side, and compression at the exhaust side, which is the safeguard necessary for reciprocating



parts moving at such speed, and which is an important factor of quick regulation of speed under variations of load. However, a little thought shows that although a single-valve automatic cut-off is well adapted to the high-speed engine, its fullest advantages cannot be realized with the centrifugal governor, so far as precision of regulation is concerned, unless the valve itself answers certain requirements.

When the centrifugal governor of a high-speed engine acts upon the eccentric which gives motion to the valve, every change in the position of the fly-weight must move the valve some so as to change its throw. A quick and accurate regulation can, therefore, be obtained only when the valve works with the greatest possible ease in its seat instead of being held tight by steam pressure, and this can be attained only when the valve is balanced. This appears to be absolutely necessary in single-valve automatic engines which are supplied with a centrifugal governor, if a close regulation of their speed is desirable. In the Ball Co.'s new engine this is not necessary; they even prefer an unbalanced valve and have adopted such in their engine.

Fig. 1 is an illustration of the governor with eccentrics detached, which appear in Fig. 2. The theory of this governor is based on the logical principle that if a varying load requires a change of steam supply, this change should be the direct result of the load and should exactly correspond with it.

Fig. 2 shows the eccentric which forms a part of the governor. "A" is the main eccentric having an elongated shaft opening. To this eccentric is attached the arm "B" whose outer end is pivoted, thus allowing the eccentric a pendulum motion across the shaft which motion controls the duration of time in which steam is admitted during each stroke. This pendulum motion is controlled by the rotation of disk "C" at its side, in the following manner: This disk has a flange "D" on its side which is eccentric to the shaft, and on the inside of this eccentric flange is a ring "E" which engages with a stud "F" in the main eccentric as shown. Thus it will be seen that the rotation forward and backward of this disk causes the main eccentric to swing across the shaft. This disk also has a sleeve encircling the shaft and projecting through the elongated shaft opening in main eccentric, and on the end of the sleeve is a flange nut "G" which holds the parts all in place. The rotation of this disk is produced and controlled by the governing forces. These forces are: 1st. The centrifugal force of the weights opposed by suitable springs. 2d. The resistance of the load or work being done opposed by the centrifugal force of the weights.

Fig. 3 is a speed diagram, showing variations of speed in a 250 horse-power engine with automatic cut-off, furnishing power to a paper mill. This diagram was made by a "Moscrop speed recorder," and each revolution was recorded as a short vertical line, whose position on the paper was higher as the speed rose and lower as it fell. The regulation shown by this record is said to be of good average character. Fig. 4 shows another speed diagram made by Moscrop indicator from a Ball engine subjected to equally trying conditions. In this case the speed-line is remarkably straight and uniform, evincing the perfection with which the governor effected regulation. The regulation is said to be as perfect as could be wished for.

The Ball automatic cut-off engine is made in three sizes, ranging from 20 to 60 horse-power, the sizes of cylinder being respectively 7x10, 9x12 and 10x12, and the range of speeds to which they are adapted being from 350 to 250 revolutions. The manufacturers write us that they now have testi-

monials, unsolicited, from perfectly reliable parties, who say, they are now making flour at an expense of 1½c per barrel for fuel. Our readers are referred to the Ball Engine Co., of Erie, Pa., for further information.

### ABOUT ROLLER MILLING.

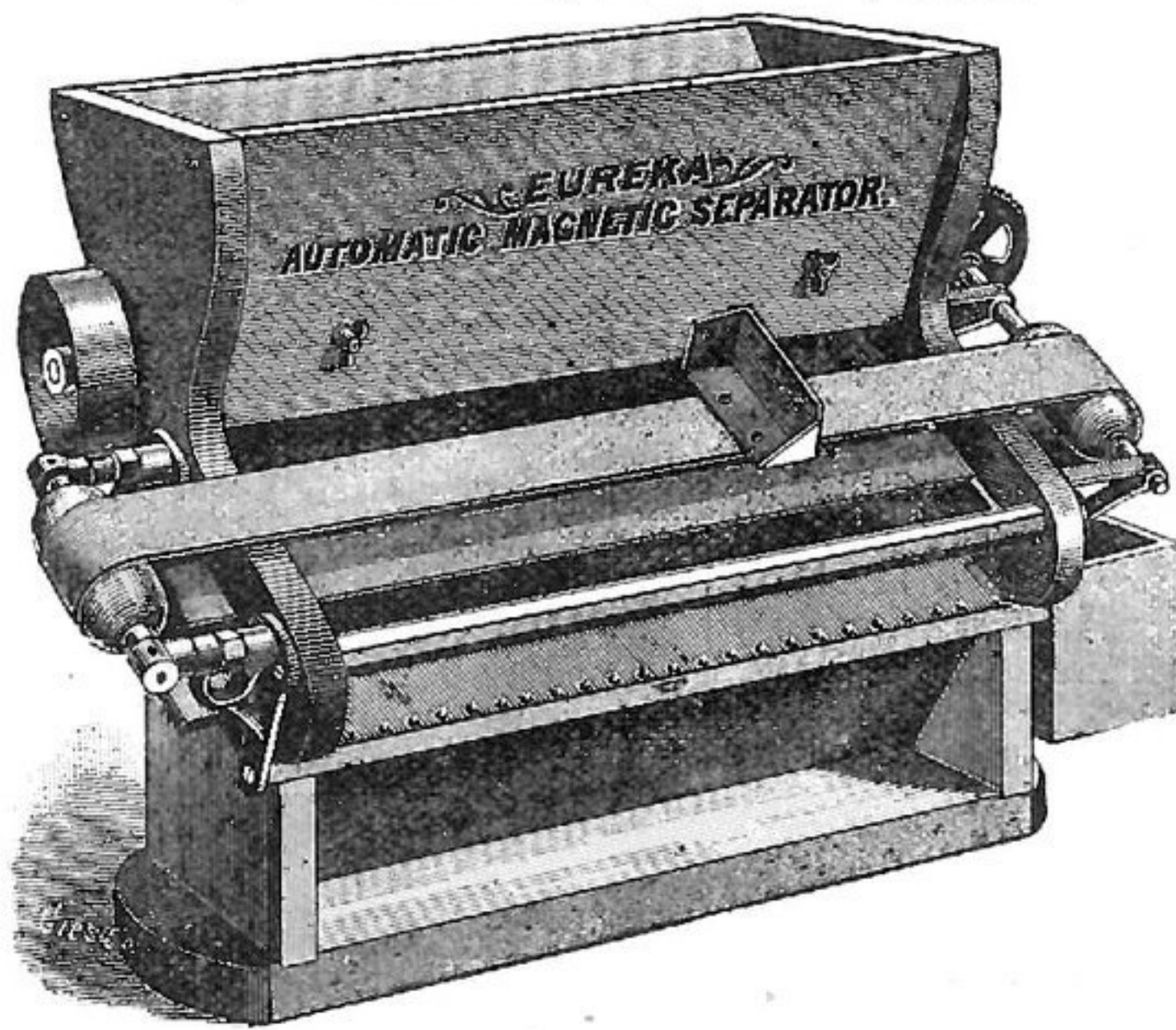
#### III.

After we have had put up many mills working on combined systems, partly with stones and rollers combined, partly with rollers alone, we thought it a very important matter to make careful calculations as to which of these two systems might prove the most advantageous to work. Amongst the factors which had to be closely considered in the above case, were the following important points: The costs of putting in the new system and its machinery; the costs for working them, and the results obtained.

Before I enter into any details with regard to the just mentioned points, I must first explain to you in which way such a combined system could be brought into use, according to my idea. The break process has to be carried out entirely on rollers. Roller milling depends principally upon the quantity and quality of semolina obtained, and it is a well acknowledged fact that by the use of rollers you will make far better and more semolina than with the stones. You will produce considerably more break flour on the stones, considerable more middlings instead of semolina, and considerably

the erection of only a few rollers, which themselves need no particular attention or looking after from the side of the miller; whilst when putting up a combined system of rollers and stones, the numbers of workmen must be increased, if only by having a special man for dressing stones, and which consequently runs to extra expense. With reference to the dressing of stones, it is necessary to have always one pair of dressed millstones at least in reserve; that means more outlay for machinery from the beginning; and, last not least, the increased danger of fire combined with the use of stones. The fact of these circumstances, besides the experience which we only gradually obtained out of our different experiments, and besides the results which came afterwards, induced us to seek and find out a pure and simple roller system.

Discussing the last part of our system—the reducing and finishing process—you will find that nearly the same points and the same principles will come forward as in the case with our break process. Reduce and finish your middlings with as little pressure as possible; don't squeeze your middlings into flour, but break them up into flour, and only on this principle you will receive a granular, well-baking flour, which does not feel soapy or killed. There are many mistakes made in this respect, and I had plenty of chances in roller mills to find people running their first reducing rollers very low indeed in order to get as much flour out of the first reduction as possible.



more of that soft, fluffy stuff, which is generally found as bad tailings in the dust chambers of the middlings purifiers. The question therefore will arise—what sorts of middlings and semolina will have to go on the rollers and which to the stones.

It is our principle when putting up a combined system, to keep those middlings and semolina, which are nearly always mixed with impurities, away from the stones, as much as possible, and prevent through this arrangement the danger of getting these impurities ground into the fine middlings by the stones.

We learn through this, that we can bring only one sort of material upon the stones, with the view of obtaining good results, and this material is pure, round, sharp middlings. Though in reality the results, obtained by complete roller mills, compared with the results of combined mills are very different, and as in both cases it depends a very great deal upon the percentage arrived at—that means the length of flour—I can state out of my own experience that with regard to the length of flour, the results of a complete roller mill are equal to those of a combined stone and roller plant, but that the quality of the pure roller flour is far superior to the flour produced by a system of rollers and stones combined.

Now, then, we have to take into our consideration the outlay for the putting up of the new machinery, and the cost of working it. When converting a flour mill into a complete roller plant, the change requires

Very advantageous and commendable is the bolting of finished flour—this for the following two reasons:

The first one is based upon the experience that finished flour improves considerably in color after its having become rebolted, and the second one is based on safety's sake. In those roller mills, especially which run at night, it is very advisable to bring the finished flour from the flour collecting worm into a rebolting machine and get it rebolted, for the imperfect light or the negligence of some workman in charge of sacking off the flour, makes it nearly impossible to discover at once the specks which might be in the finished flour, and which have perhaps spoiled already a considerable quantity of flour.

Roller milling itself has made steady but safe progress during the last 15 years in all parts of the world. The roller system is no novelty at the present day, and after having seen that it has been introduced into flour mills with a capacity of only 100 to 200 sacks per week—that means a very small plant indeed—I think I may consider myself justified in saying "roller milling is the milling of the future."

It can hardly be disputed, that by the new process you are in the position to produce out of a certain and cheaper quality of wheat a quality of flour, which to obtain from stones would be simply impossible.

Roller millers, even if they do not get a much higher price for their produce (according to the stand of the market at the time) than stone millers, they have got the unmistakable advantage on their side that they can use a cheaper raw produce; I say, a raw produce which to buy at any time they need not be subjected so much in their transactions to the prospects and returns of the harvests at home, but are in the position to grind any class of wheat which has been imported from foreign countries.

I am very often asked: Well, how will it be after we have all got roller mills? Will it not be the same as it is now? Well, gentlemen, the best answer to that question will be the figures, giving the immense quantities of foreign roller flour imported into this country. If one single German roller establishment finds a market for 1,000 sacks of flour every day one the coast of Yorkshire alone, I think this speaks for my suggestion, that you want to put yourselves on a footing to produce the same sack of flour which these foreign countries send into your ports, and I say that no other country is better situated in this respect than you are, whose ports are open to all wheats of different countries, and you who find any wheats on your markets. If you fulfill this task you will do it not only for your own profit and welfare, but for the welfare and the benefit of the country.

### CLEAN YOUR WHEAT.

It is not the intention in this article to inflict upon our readers a long dissertation to show the necessity of thoroughly cleaning wheat before reducing it to flour, but rather to briefly describe an apparatus which has become a standard appliance in the cleaning department of well regulated mills in every section of the country. The machine is known as the "Eureka" automatic magnetic separator, and its origin may be traced to the introduction of wire-binding attachments to the reaper, which made some sort of an apparatus for removing the pieces of wire left in the grain after being threshed an absolute necessity. To effect this, the common horseshoe magnet, arranged in gangs and placed in the spouts through which the grain flowed, was used. The use of these magnets revealed the fact, that a large amount of other metallic material, aside from the wire used in binding, such as small bolts, nails, tacks, pieces of sheet iron and particles of ore, were found mixed with



the grain, which could not be removed without the aid of some sort of magnetic arrangement. The gang magnets were found to be defective, as it was necessary to remove them from the spouts at stated times, and brush off, by hand, the metallic material that had been attracted to the magnets. While this was being done, it was also necessary to stop the flow of grain; otherwise, the metallic material would pass on with it. To obviate these difficulties, is the design of this machine. Since the machine came into the hands of the present manufacturers, it has been greatly improved, (for which patent has been obtained), and consists of sheet iron being placed on the poles of the magnets, which becomes charged with magnetism, making a strong magnetic field for arresting iron in the various forms in which it is found in grain. It also serves as an armature or keeper for preserving the strength of the magnets. This is of great importance, as the strength of the magnets will remain the same for an indefinite period. A feed-roll has also been added, which makes the flow of grain uniform and even.

The operation of the machine is as follows: The grain is fed into the hopper, and, by the feed-roll, is distributed evenly the entire length of the machine. It first falls on heavy zinc, which, being a non conductor of magnetism, particles of iron, intermixed with grain, flow together until they reach magnetized sheet iron, where the iron particles are held until removed by the wiper attached to an endless belt, which passes over it once a minute, depositing them in a box at the end of the machine. From above description, it will be seen that the machine is simple and durable, and entirely automatic in its operations. The experience of those using the ordinary magnets, has shown that no miller, although he may not grind grain harvested by reapers having the wire-binding attachment, can afford to be without something for removing this material, and especially is this the case when rolls are used, to say nothing of the immense damage done to bolting cloths, where no precaution is taken. This machine will, no doubt, pay for itself many times each year, even in a mill of small capacity. It is made in five sizes, ranging in capacity for treating from 25 bushels to 300 bushels per hour, hence is adapted for every requirement, and as prices are extremely moderate no miller can do without it on the score of expense. The sole manufacturers, Messrs. Howes & Ewell, Silver Creek, N. Y., will take pleasure in supplying further information upon request.

#### ROAMING ELI.

What Eli Perkins doesn't know, and can't find out, he evolves from his inner consciousness. He's been doing France and embodies his impressions in the following:

France is literally one large garden. Every inch of soil is cultivated. In riding from Paris to Dijon, 150 miles, we counted only thirty cattle. We saw no sheep or hogs. The farms have usually from one to ten acres. Some farms have half an acre, and some have as many as twenty acres. They are usually from 30 to 300 feet wide, and 1,500 to 2,000 feet long. There are no fences between them.

When I asked a French farmer how his farm happened, like all the rest, to be so long and narrow, he said:

"It has been divided up so often. When a French father dies he divides his farm and each one of his children has an equal share. He always divides it lengthways, so as to give each one a long strip. The long strips are easily cultivated because we plow lengthways. These strips always run north and south, so the sun can shine into the rows."

"How large is your farm?" I asked.

"My fathers farm was 300 feet wide and

2,000 feet long. When he died my brother had half. Now my farm is 150 feet wide and 2,000 feet long. It is quite a large farm. There are many farms much smaller than mine."

"What do you plant in it?" I asked.

"See over there," he said, pointing to what seemed to be a gigantic piece of striped carpet, "is a strip of wheat sixty feet wide. Then comes a strip of potatoes twenty-five feet wide. Then comes forty feet of oats, then ten feet of carrots, twenty feet of alfalfa (clover), ten feet of mangel-wurzels, five feet of onions, five feet of cabbages, and the rest is in flowers, peas, currants, gooseberries, and little vegetables."

"Can you support your family on a farm 150 feet wide and 2,000 feet long?" I asked; for the narrow strip seemed like a man's door-yard in America.

"Support my family!" he exclaimed. "Why, the farm is too large for us. I rent part of it out now."

"But your house," I said, "where is that?"

"O, that is in town. Five families of us live in one house there. My wife and I come out every morning to work and go in at night."

"Does your wife always work in the field?" I asked.

"Yes. My wife," he continued, pointing to a bare-footed and bare-headed woman, at least six feet around the waist, "she can do more work than I can. She pitches the hay to me on the stack. All French women work in the field. Why not? They have nothing to do at home."

This is true. The wife of a French, English, Irish, or German farmer has nothing to do at home. They do not "keep house" like the wives of American farmers. They have no houses to keep. The huts they live in are like stables. They live in the same building with their horses, hens and pigs. They never wash a floor. There is never a table-cloth. They live like brutes. The handsome farm-house off by itself, surrounded by trees and gardens, does not exist in France. They live no better and are really no better off than were the slaves of the South before the War. French farmers always congregate in little tumble-down villages situated about two miles apart. These villages may have been built 300 years ago. The roofs are moss-covered, the houses are dirty, and remind one of a county poor-house in New England.

There are millions of farms in France containing from a quarter of an acre to four acres.

I find that an acre and a half is about all the most ambitious man wants. The rent for land is always one-half the crop. The land is worth about \$400 an acre; or, if in grape vines, \$600.

This is why France is like a garden. In England there are 227,000 landowners; in France there are 7,000,000 landowners. The Frenchman on his two acres, with his bare-footed wife cutting grain with a sickle by his side, is happy and contented, because he knows no better. Such a degrading life would drive an American farmer mad. The Frenchman thrives because he spends nothing. He has no wants beyond the coarsest food and the washings of the grape skins after the wine is made. Yes, he is thrifty. He saves money, too. The aggregated wealth of 30,000,000 poor, degraded, bare-footed peasants makes France rich. The ignorance of the French farmer is appalling. I never saw a newspaper in a French farm village. Their wants are no more than the wants of a horse. The Frenchman eats the coarsest food; about the same as he feeds his horse. He will eat coarse bread and wine for breakfast; soup, bread, and wine for dinner; and perhaps bread and milk for supper; he does not know what coffee or tea is. The Negroes of the South live like

kings compared to a French farmer. Still, the Frenchman is satisfied because he knows no better.

When I asked a French farmer who was cultivating his farm (150 by 1,500) if he saved any money, he said:

"O, not much. I go to all the fetes. I laid by 500 francs (\$100) last year. I put it in the *Caisse d'Epargne*.

"What is that?" I asked of the landlord.

That is the Government Savings Banks. The Government takes the money of the poor, up to 1,000 francs, and gives them 3 1/2 per cent. for its use. The peasant farmers of France have nearly \$800,000,000 on deposit in these savings banks. These poor, degraded, half-fed farmers keep the French treasury full of money.

It is pleasant to note, says the *American Engineer*, that an advance is being made towards a more speedy attention to the applications for patents at Washington. For some years back the several divisions have been falling behind, and are now so far behind that it will require some hard work and close attention before all the divisions will have caught up. However, the promise is now made of a competent increase in the force and general promotions, together with increased and more respectable accommodations. The divisions are now some of them so much delayed that such increased facilities will be slow to be noticed by those outside of the office, but with a little patience all will be right. In electricity the patent office is at least three months behind; in metal work and boiler practice, three and one-half months; in heating, illuminating and drying, four and one-half months; in household furniture, five months; in civil engineering, five months; in printing, book-work and paper manufacture, over seven months; harvesters, etc., eight months; textile fabrics, over seven months, and so on through the whole list of departments. From the above it is evident that there is considerable free condemnation being extended among the inventors, and a general dissatisfaction prevails among them that after an invention is completed, they shall be forced to the lengthy wait and worryment as is experienced at the present time.



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A situation in a mill, by a man with a small family, who has been running burr mills for a number of years. Address, WM. H. WOLLERTON, McElhattan P. O., Clinton county, Pa. 1518

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In the United States and Canada, postage prepaid,  
\$1.50 Per Year, in advance; can be remitted by Postal  
order, registered letter, or New York Exchange. If  
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To all Foreign Countries embraced in the General  
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and new addresses. Those who fail to receive their  
papers promptly will please notify at once.

#### ADVERTISING.

Card of Rates sent promptly on application. Orders  
for new advertisements should reach this office on  
Tuesday morning, to insure insertion in the week's  
issue. Changes for current advertisements should be  
sent so as to reach this office Saturdays.

#### EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights  
on any subject pertaining to any branch of milling or  
the grain and flour trade.

Correspondents must give their full name and address,  
not necessarily for publication, but as a guarantee of  
good faith.

This paper has no connection with any manufacturing  
or mill furnishing business. Its editorial opinions  
cannot and will not be influenced by a bestowal or  
refusal of patronage. It has nothing for sale, but its  
space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as  
mail matter of second-class.

#### MILLERS' ASSOCIATIONS.

NATIONAL.....S. H. Seamans, Sec'y, Milwaukee, Wis.  
CALIFORNIA.....F. J. Parsons, Sec'y, Oakland.  
ILLINOIS.....C. H. Seybt, Sec'y, Highland.  
INDIANA.....Jos. F. Gent, Pres't, Columbus.  
IOWA.....J. S. Lord, Sec'y, Ogdun.  
KANSAS.....O. W. Baldwin, Sec'y, Ottawa.  
KENTUCKY.....W. H. Wherritt, Sec'y, Lancaster.  
MARYLAND.....J. Olney Norris, Sec'y, Baltimore.  
MICHIGAN.....W. Hibbard, Sec'y, Grand Rapids.  
MINNESOTA.....Frank Pettit, Sec'y, Minneapolis.  
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NEBRASKA.....C. D. Smith, Sec'y, Lincoln.  
WISCONSIN.....S. H. Seamans, Sec'y, Milwaukee.  
TEXAS.....Mitch. Gray, Sec'y, Dallas.  
PENNSYLVANIA.....Landis Levan, Sec'y, Lancaster.  
OHIO.....Robt. Colton, Sec'y, Bellefontaine.  
NEW YORK.....J. A. Hinds, Sec'y, Rochester.

#### THE FIRE KING.

THE fire tables of the New York  
*Commercial Bulletin* exhibit a  
startling array of losses during the month  
of July among flouring and grain establish-  
ments. It needs such carefully prepared  
statistics to convince not only millers, but  
every manufacturer of the United States,  
that fire taxes their establishments more than  
any other form of loss. When we are told  
that in the United States and Canada during  
the month of July alone, ten flouring mills  
and elevators burned, with an aggregate loss  
of \$327,000, in addition to \$90,000 worth of  
grain in California, making a total of \$417,-  
000, not counting any losses less than \$10,-  
000, which perhaps would foot up quite a  
respectable additional number, we may well  
pause to think. A fair estimate gives the  
total loss by fire throughout the United States  
and Canada during the month of July at  
\$8,800,000, or \$700,000 more than has been  
charged by statistics to any July during the  
past ten years, which are given as follows:  
July 1875, \$5,114,700; 1876, \$5,947,100;  
1877, \$7,577,900; 1878, \$5,383,800; 1879, \$5,-  
511,200; 1880, \$5,325,000; 1881, \$8,061,400;  
1882, \$7,127,990; 1883, \$8,177,198; 1884,  
\$8,800,000. Of the losses in flouring mills,  
Ontario suffered most, three fires destroying  
\$220,000 worth of property; Ohio with four  
fires suffered a damage of \$52,000; one mill  
each in Kansas, Iowa and Wisconsin suffered  
respectively \$30,000, \$10,000 and \$15,000.

We may well ask how much of these  
losses were preventable? If we could eli-  
minate those due to carelessness, ignorance,  
indifference and other similar "unknown"  
causes, the immense figures would perhaps  
be reduced to quite reasonable sums. The  
necessity for fire prevention, well known  
and practiced at some of our milling centers,  
is not as generally understood by each in-  
dividual miller as it ought to be; like the  
woman who persists in lighting the fires  
with kerosene and who had never anything

happen to her, the ounce of prevention is  
neglected until an accident does occur and  
even a pound of cure is found insufficient to  
remedy the damage done.

No matter how well insured the property  
may be, the owners themselves must pay for  
the losses in premiums and the question is  
whether increased insurance rates, to coun-  
terbalance the increased destruction, have  
not yet been able to teach the necessary  
lesson that certain means *must* be adopted  
to prevent this immense drain upon the re-  
sources of the inhabitants of America.  
Whether the losses are paid by "regular"  
or by "mutual" insurance companies, matters  
but little in this connection.

When we read descriptions of new mills,  
the improved machinery and their arrange-  
ment is generally well emphasized, but the  
means to extinguish any incipient conflagra-  
tion is, in the majority of cases, passed by  
as of minor, or of no importance in the  
construction of the mill. The dangers from  
dust explosions have been reduced to a  
minimum by improved dust collectors and  
electric lighting; we have automatic and  
other fire extinguishers; mill fire brigades  
and city departments, and it really seems  
that the applications of all known resources  
to prevent fires are sufficiently numerous, if  
used judiciously. But this seems to be the  
deficient point. As long as such and such  
a thing happens to "my neighbor," it does  
not concern me in any particular manner,  
and there seems to be little hope for im-  
provement until every mill throughout the  
land has been destroyed by fire at least *once*;  
then all will know how it is themselves and  
will feel like joining hands with their fellow  
millers who advocate the "prevention of fire  
policy."

#### NIAGARA FALLS' NEW MILL.

As evidencing the correctness of assertions  
frequently made by THE MILLING WORLD,  
to the effect that the manufacture of flour can  
be profitably and successfully carried on in  
this vicinity we give a few details in refer-  
ence to the new establishment now in course  
of erection by the Central Milling Co., at  
Niagara Falls. The buildings will comprise  
the mill proper, a packing house and grain  
elevator or warehouse. The mill will have  
a capacity of 1,500 barrels per twenty-four  
hours, will be supplied with 50 stands of  
double Odell 9x18 rolls, and the motive  
power will be water transmitted by a Victor  
turbine wheel under sixty-five feet head.  
As to whose purifiers and wheat cleaning  
machinery will be employed, no decision  
has yet been reached. The packing house  
will adjoin the mill, but will form no part of  
it, the intention being to confine the mill  
solely to the conversion of the wheat into  
flour. The wheat cleaning department will  
be in the elevator, as will also be the wheat  
mixing departments. In addition to the 50  
stands of double rolls, six or seven runs of  
stone will be employed on soft, fine mid-  
dlings. The mill building is to be of the  
most substantial character, stone, quarried  
on the ground, being alone employed in the  
walls. The elevator will have storage ca-  
pacity for 130,000 bushels of wheat, and  
will have every valuable appliance for eco-  
nomically transferring wheat from or into  
cars, or from one bin into another. The  
entire work of arranging both mill and  
elevator is in the hands of Mr. U. H. Odell,  
while the contract has been awarded to the  
Stillwell & Bierce Mfg. Co., of Dayton, O.

The parties interested in building this  
mill are Messrs. Schoellkopf & Mathews,  
proprietors of the Frontier Mills of this city,  
and of the Schoellkopf & Mathews "big"  
mill at the Falls; Mr. John Smith, superin-  
tendent of the mills named; Mr. Gregg  
lately head miller for Saxton & Thompson,  
of Lockport and Troy, N. Y., and Mr.  
James a well-known Boston flour dealer.  
The estimated cost of the entire establish-

ment is nearly \$300,000, and while no  
"scollops" are to be indulged in, we are  
promised the best arranged establishment  
of its magnitude in the country when it is  
completed.

We refer to this matter here for two  
reasons: It deserves prominent mention  
because it is the largest contract, if we are  
not mistaken, let during the past two years;  
It evidences the justness of our repeated  
assertions that flour can be profitably man-  
ufactured at points far distant from sources  
of wheat supply. We shall refer to this  
matter more in detail at an early day,  
meantime such of our readers as contem-  
plate an early decadence of flour milling  
will ponder on this undertaking.

#### WE DRIFT INTO POLITICS.

The following letter, received from an es-  
teemed subscriber, will explain why we  
touch upon a topic entirely apart from  
the interests THE MILLING WORLD is  
identified with.

Editor Milling World:

I am a Democrat and therefore feel an interest in  
knowing whether the slanderous reports against the  
character of Governor Cleveland, which have been her-  
alded throughout the country, over the signature of  
the Rev. Mr. Ball and others are true, or are they ground-  
less and only political fabrications. A plain statement  
of the facts in the case, which I may have the right to  
make public, will be gratefully received and appreci-  
ated.

Yours very truly,

B. F. BERGEN,

Proprietor of Union Roller Mills, Minier, Ill.

The truth or falsity of the reports to which  
our correspondent alludes we have no means  
of determining. We have neither the pleas-  
ure, nor the disgrace, of a personal acquaint-  
ance with Governor Cleveland. We are in  
no measure cognizant of his personal habits,  
nor, as politics usually go, do we think it our  
individual duty to investigate them. The  
story, in some of its particulars, may be,  
possibly is, true, but as but one side has been  
given to the public, we question the justice  
of entire condemnation before the other  
side has been heard. We have no sympa-  
thy with movements which seek to prejudice  
any candidate's chances of success upon  
purely personal grounds. A man may neg-  
lect his family; may, upon occasion, beat  
his wife; may even, at times, become gross-  
ly intoxicated, and still rigidly and impar-  
tially enforce observance of the laws which he  
may be elected to execute. If the private  
lives of the majority of our law-makers were  
exposed to the public gaze the sight, we  
opine, would be anything but edifying. It  
might, perhaps, be well for those who are  
swallowing this story, with all its nauseat-  
ing details, to remember that Mr. Cleveland  
is, and was, well versed in law, and would  
not, wittingly, render himself liable to its  
penalties, as it is asserted he did in procur-  
ing the incarceration of Maria Halpin in an  
insane asylum, and kidnapping her child.  
As for the Rev. Ball, who vouches for the  
entire truth of the story, it would be highly  
interesting to learn how he *knows* it to be  
true. As we write this, word reaches us  
that the Democratic State Committee will,  
in a day or two, meet the scandal with an  
authorized and full refutation. It will be in  
entire accord with the request made by Mr.  
Cleveland that the entire truth should be  
stated. The intimacy with Maria Halpin  
is admitted, but charges of brutality, seduc-  
tion and abduction are explicitly denied, and  
the denials supported by conclusive evidence.  
The defense, we learn, is to be very com-  
prehensive and will meet every issue in the  
case. Don't ask us any more questions upon  
this subject. We're disgusted with politics.

A PETITION was circulated on change at  
St. Louis one day last week asking the  
Board of Directors to abolish the grading of  
flour and permit it to be sold on its merits,  
but failed to secure favorable recognition.

NOTICE the team carting off that load of  
Smith purifiers, shown on another page.

Its almost exact counterpart is owned by  
The Jno. T. Noye Mfg. Co., of this city.  
An advertisement of that style is very at-  
tractive, but it uses up a lot of ink.

IN renewing his subscription, Mr. B. B.  
Boardman, of Clifton Springs, says: "En-  
closed I send order for THE MILLING  
WORLD for another year. I consider it first  
class, and how you can furnish it for the  
price you do is more than I can understand."  
It is little expressions like this that makes  
an editor's heart glad.

EXPERIMENTS are now in progress,  
which, if attended with success, will, we  
predict, entirely revolutionize one branch of  
flour milling. We have witnessed several  
of these experiments and they certainly in-  
dicate that progress is being made in the  
right direction. If results are as anticipated  
our readers will learn of it in a very short  
time.

THERE is a decidedly brighter look to the  
mill furnishing trade if we may judge by  
the reports which reach this office. In some  
branches business is, and probably will for  
some time remain, dull, but on the whole  
the tone of trade is decidedly better than it  
has been. We hear of some new projects  
in the line of mill-building and hope soon  
to be able to chronicle them as certainties.

WE are told that at the model mill of  
Stillwell & Bierce Mfg. Co., Dayton, Ohio,  
the system pursued dispenses wholly with  
the employment of middlings purifiers, and  
that the produce of the mill has had a local  
sale with expressions of entire satisfaction  
from the consumers. We don't know what  
the system pursued is, but expect to have  
particulars for publication in a short time.

By the way, will some of our contempor-  
aries tell us where that boom in wheat values  
has gone to? Receipts at all central points  
are reported large; there is literally no de-  
mand for export; our flour markets are not  
in a buoyant condition, and what is to add  
stiffness to values is at present indiscernible.  
Trot out your boom. The children are cry-  
ing for it. To our way of thinking neither  
New York or Chicago will make prices on  
wheat this year. That was tried last year,  
and resulted in a good many burnt fingers.  
The Department of Agriculture estimates  
the wheat yield this year at 485,000,000  
bushels, and it is generally conceded to be  
of exceptionally fine quality, still it is very  
doubtful if speculation will exert much in-  
fluence in the regulation of values for some  
little time yet, and the farmer apparently is  
acting on the principle of quick sales and  
small profits.

MUCH, perhaps too much, has been said  
and written upon the subject of over-pro-  
duction, but how many of our readers have  
thought that it is, in part, traceable to the  
multiplicity of what is termed labor saving  
and expediting machinery? By the aid of  
this machinery our ability to produce has  
been enormously increased, and even in our  
most prosperous and busy times we have a  
surplus of unemployed labor. Every year  
adds to our facilities for production, while  
also necessitating the search for new fields  
of endeavor by those whose handicraft has  
been made useless by the interposition of  
mechanical devices. This contest between  
man and machinery will go on; nothing can  
stop it; yet as machinery multiplies the  
struggle for existence upon the part of the  
laborer will become harder and harder, until  
the day arrives when man will recognize  
that incessant toil adds nothing to life, en-  
joyment or power. This is a bit of philoso-  
phy for which no extra charge is made.



ESTABLISHED 1856.

## EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOR BOLTING CLOTH

OVER 18,000 MACHINES IN USE.

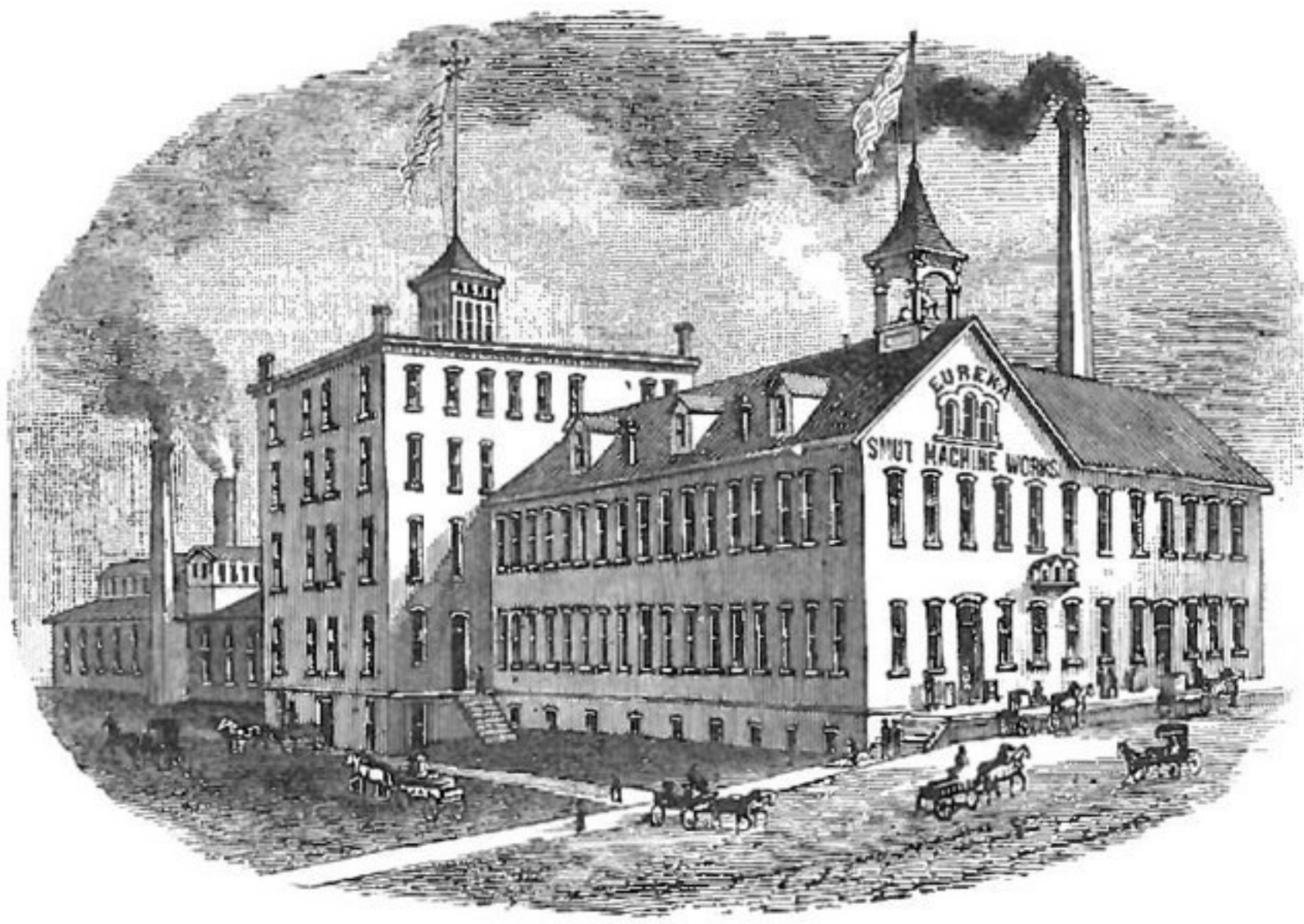
OUR LINE COMPRISES

The Eureka Separator,  
The Eureka Smutter and Separator,  
Eureka Brush Finisher,  
The Eureka Magnetic Automatic Separator,  
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

**HOWES & EWELL,**  
SILVER CREEK, N. Y.

European Warehouse and Office: 16 Mark Lane, London, E. C. England.  
Gen. Agency for Australian Colonies and New Zealand.  
Thos. Tyson, Melbourne, Victoria.



We handle this justly celebrated cloth in large quantities, and can fill all orders upon receipt. For such as may prefer a cheaper grade, we offer our

**ANCHOR BRAND BOLTING CLOTH.**

Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

Send For Samples of Cloth, Our Style of Making Up, and Prices.

**HOWES & EWELL,**  
SILVER CREEK, N. Y.

## Buckwheat Refiners &amp; Portable Mills



BREWSTER'S CELEBRATED

Buckwheat Refiner

Is the only machine whereby the greatest yields of

**PURE, WHITE SHARP FLOUR**

can be obtained. The only reliable, practical and durable machine

**IN THE WORLD.**

THE POSITIVE ADJUSTMENT  
AND AUTOMATIC  
**MIDDLINGS MILL**

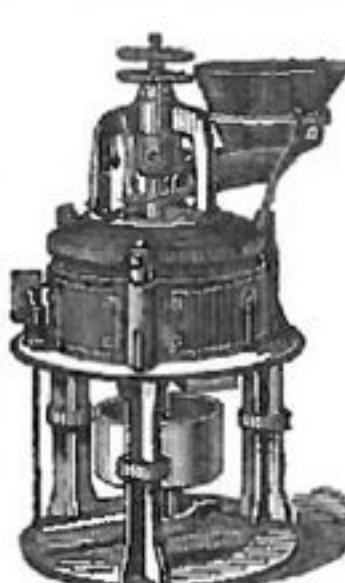
Is Strictly Self-Protecting  
The Best Adjustment in the World.

And the only

**Perfect Granulator**

Grinds Cool, Self-Oiling, Great Saving of Power.

**Simplicity and Durability Combined.**



Satisfaction Guaranteed on all our Goods. Send for Descriptive Circular, giving Prices, Sizes, Terms, etc.

**BREWSTER BROS. & CO. Unadilla, N. Y.**

## PATENT MILLSTONE CEMENT

Invaluable to Millers for Repairs  
ties and Seams in French

This is a new article of manufacture, and is common use by millers. It is much cheaper, son. It is perfectly harmless, containing nature and attains the hardness of French only fills the cavity, but adheres to and be-grinding. Good Millstones are now in use, composed entirely of this preparation. The



ing and Filling the Joints, Cavi-  
Burr and other Millstones.

greatly superior to the preparations now in and can be applied by an inexperienced per-  
thing of a poisonous nature. It has the  
Burr Stone, wears evenly with it, and not  
comes a part of the Stone, and assists in  
this preparation. The

**LEADING MAKERS ARE ADOPTING IT TO BUILD THEIR MILLSTONES.**

For miller's use, it is put up in cases of about 50 lbs. Price per case, \$5.00.

We cannot open an account for so small a sum, therefore Cash should be sent with order otherwise we shall send C. O. D. by Express, collecting for return of the money.

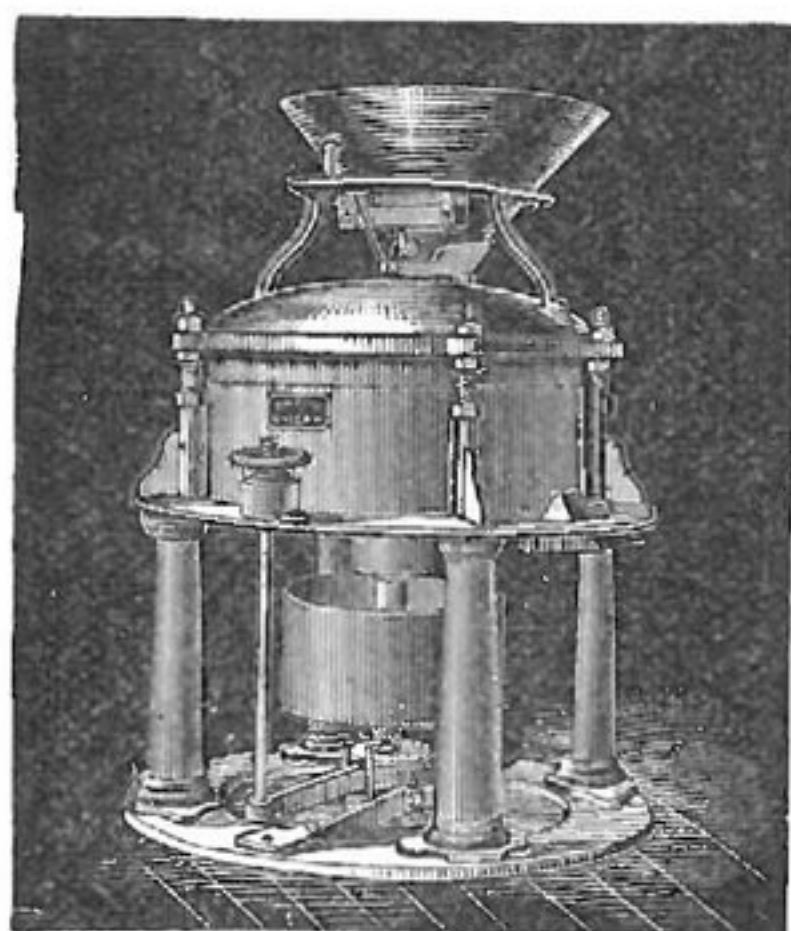
For manufacturers, we furnish in bbls. of 300 lbs. Price upon application.

Emery Rub Stones, for hand use in Finishing the Furrows and Faces of Millstones.

**Union Stone Co.,** 38 & 40 Hawley Street, **Boston, Mass.**

Union Emery Wheels, Emery Wheel Machinery and Tools a Specialty. Wooden Pol-  
ishing Wheels, Grinders' and Polishers' Supplies. Catalogue on Application.

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FOR WHEAT, MIDDLINGS, CORN, FEED, Etc.

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**MILLING MACHINERY,**  
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## THE CASE MACHINES

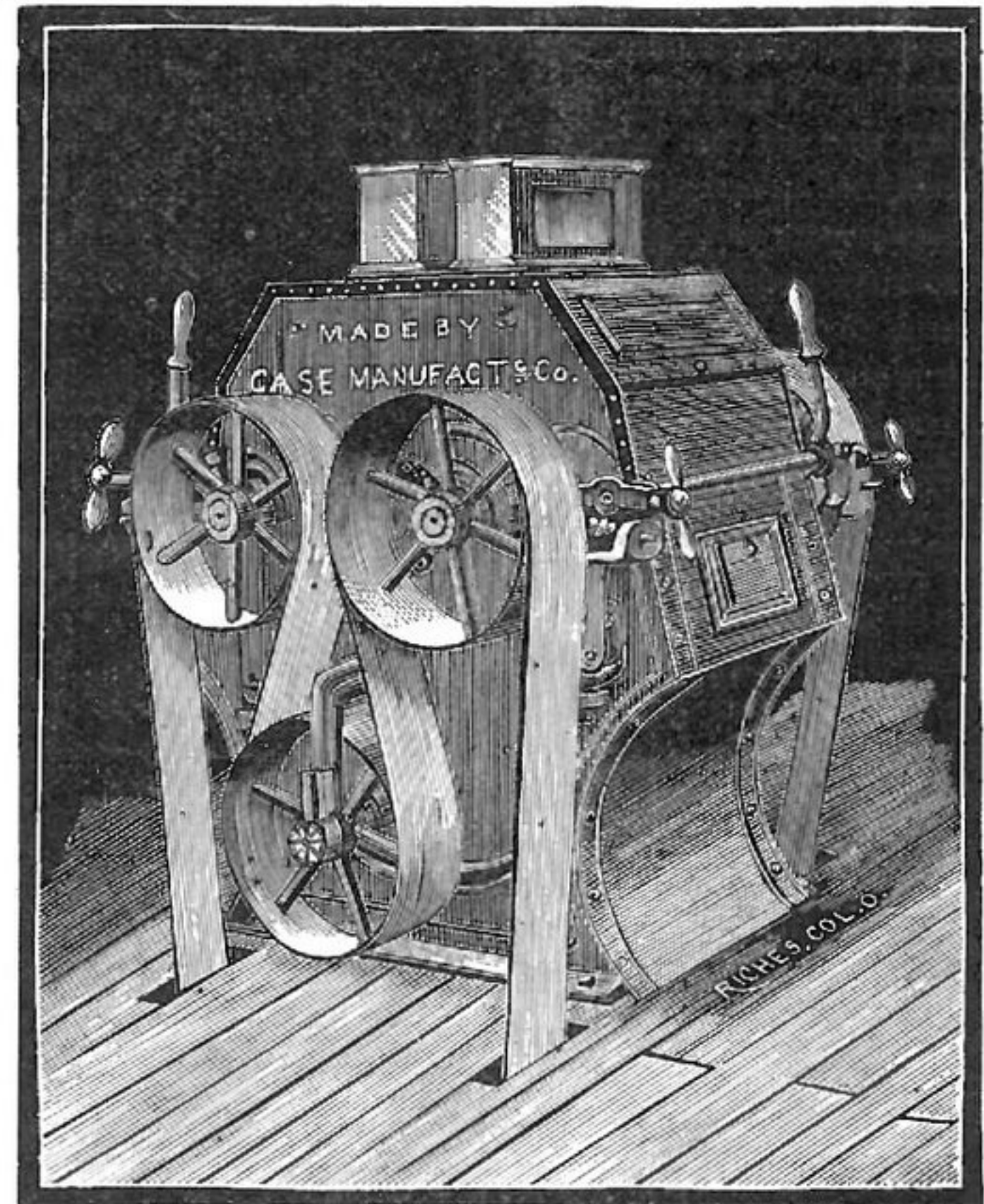
THESE EXTRACTS ARE TAKEN FROM LETTERS JUST RECEIVED:

"I don't see how the 'Little Giant' Break and Scalper could be beat."

"I am selling flour at 30 to 50 cents more per barrel than most of my competing roller mills."

"I am well pleased with all the machines I bought of you."

WE CAN DO AS WELL FOR THE NEXT MAN  
AS WE HAVE FOR THESE. WRITE US.



WE CAN DO AS WELL FOR THE NEXT MAN  
AS WE HAVE FOR THESE. WRITE US.

9x18 4-ROLL "BISMARCK" MILL.

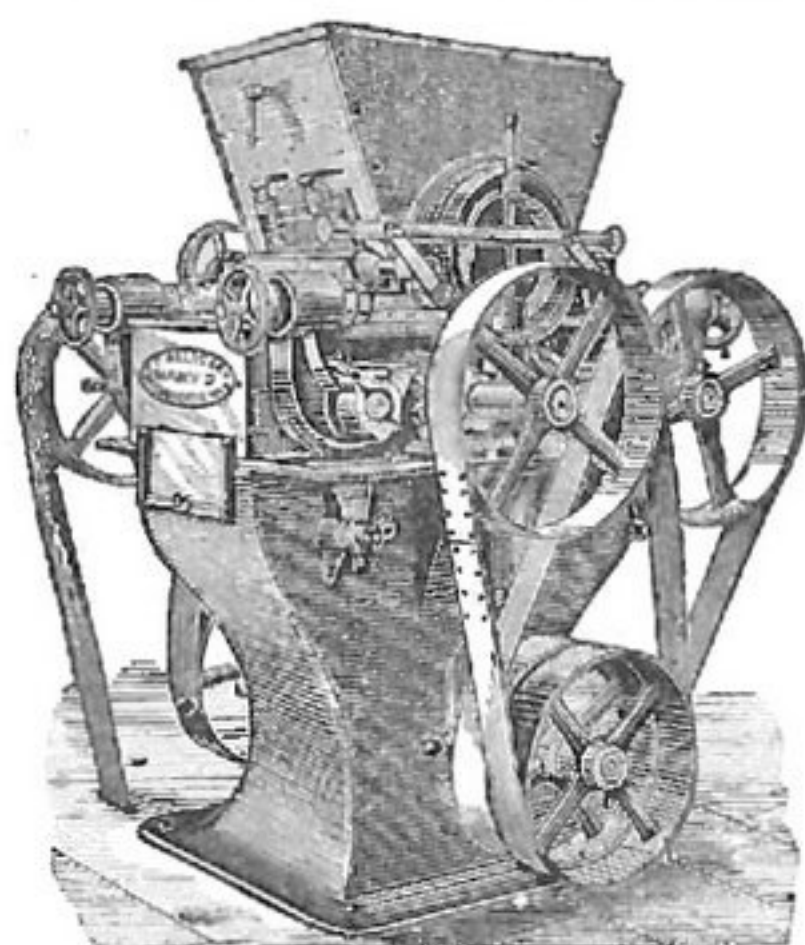
"I would not have the roller feed if the rolls and all were made a free gift."

"Our flour stands second to none in the city or state."

**WE CAN SHOW HUNDREDS OF SUCH.**

**Case Mfg. Co., Columbus, O.**

**GOVERNORS** { For Water Wheels } **Cohoes Iron Foundry & Mch. Co.**  
Send for Catalogue. **Cohoes, N. Y.**



## THE BRADFORD MILL CO.

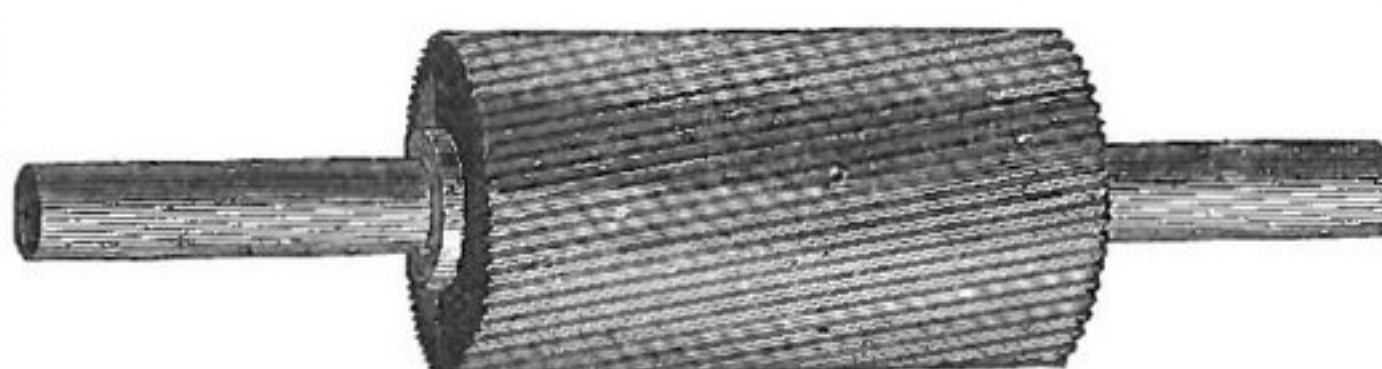
Manufacture a Complete Line of

**FLOUR MILL MACHINERY,**

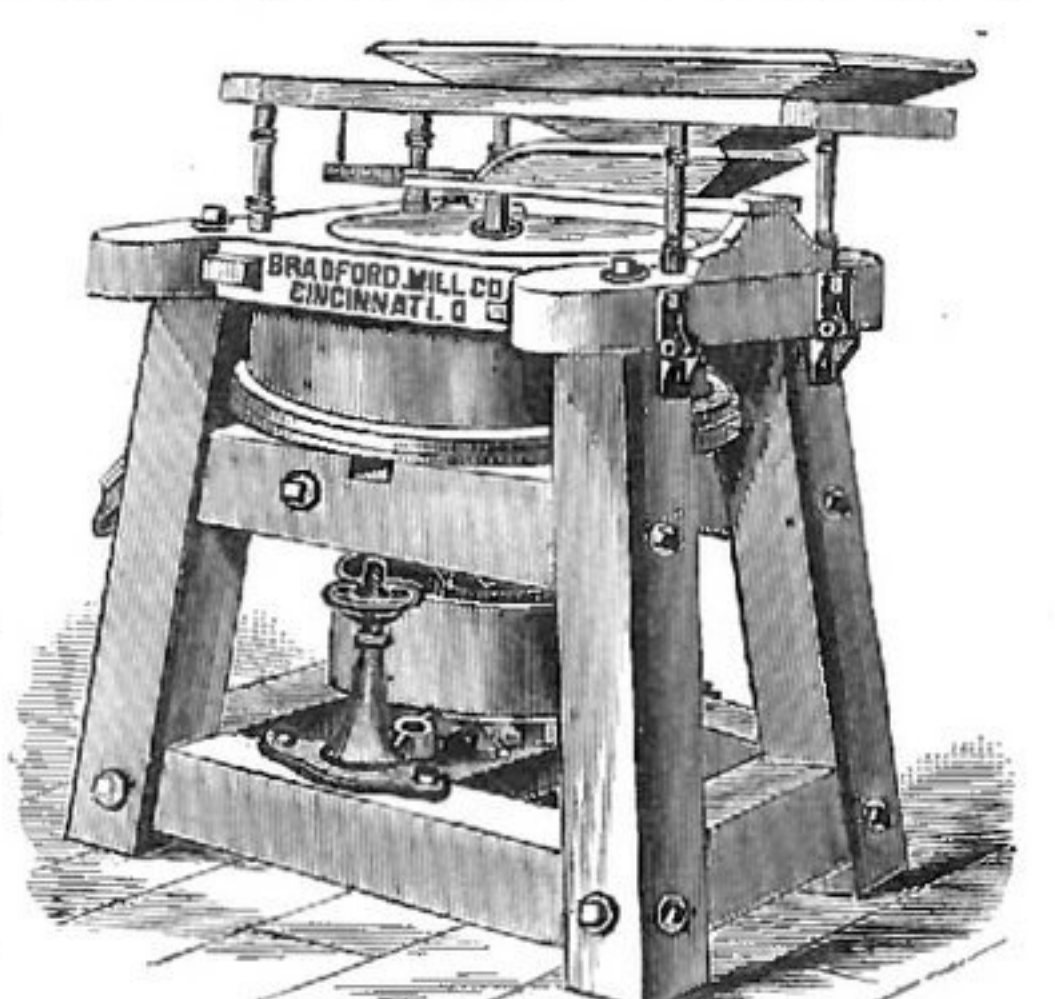
Including Portable Corn and Middlings Mills.

**RE-GRINDING AND RE-CORRUGATING**

**PORCELAIN  
ROLLS  
RE-GROUND.**

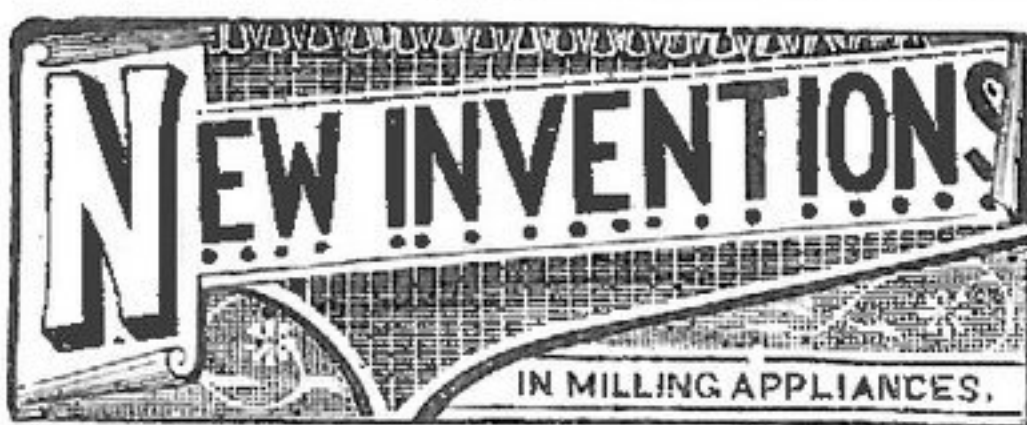


**CHILLED IRON  
ROLLS  
Re-Ground and  
Re-Corrugated.**



**EIGHTH AND EVANS STREETS, - CINCINNATI, OHIO.**





### APPARATUS FOR SEPARATING DUST FROM AIR.

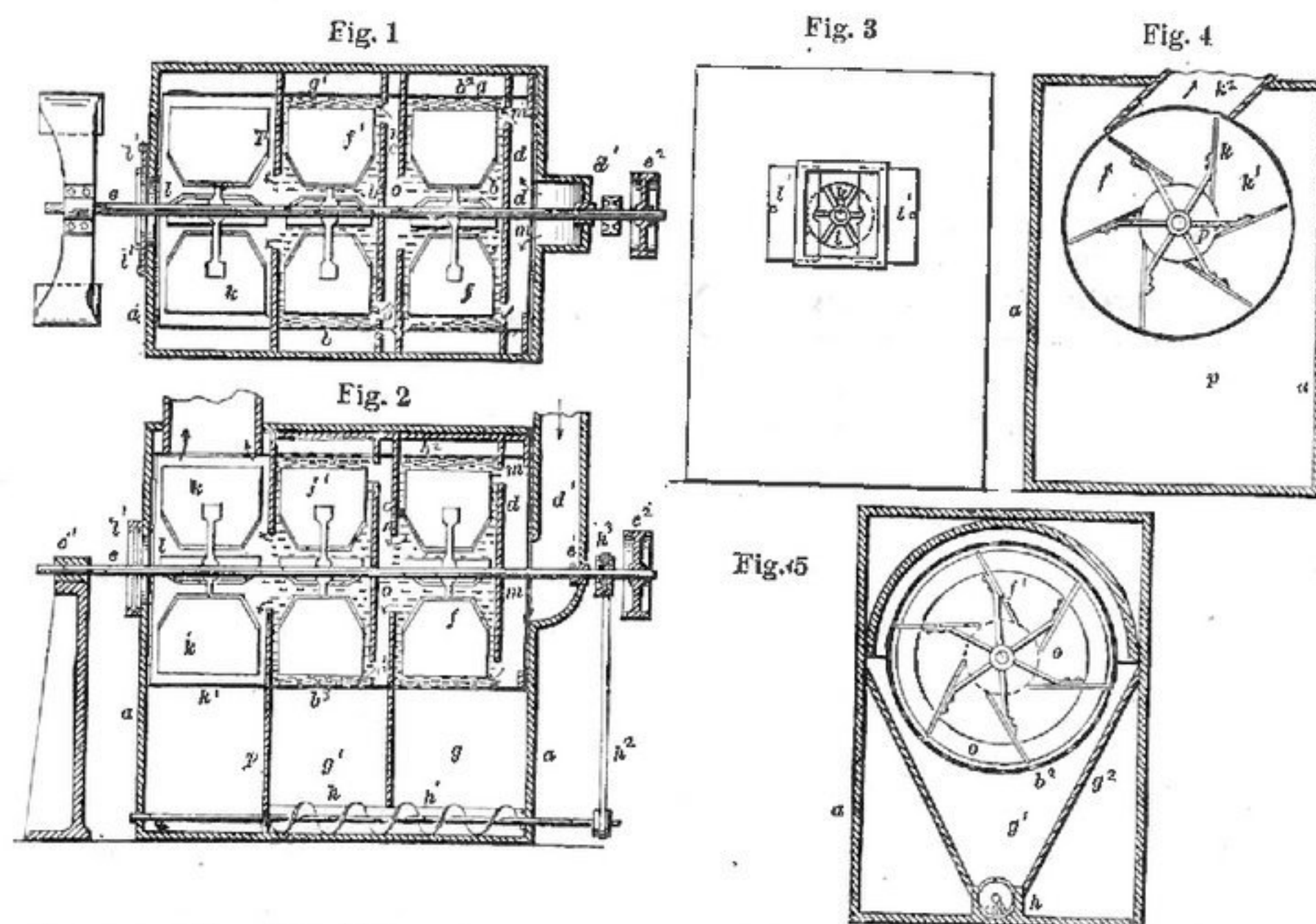
Letters Patent No. 302,608, dated July 29, 1884, to George E. Watson, of Lockport, and George T. Chester, of Buffalo, N. Y., said Watson assignor to said Chester. This invention relates to certain improvements in that class of machines employed in freeing from air the dust which is taken by suction from the different machines of flouring mills, where such separation is effected substantially by driving the dust particles out of the air-current by centrifugal force into a closed receiving-chamber, while the air which has been freed from dust is permitted to escape in a different direction. The apparatus heretofore employed for this purpose has consisted, substantially, of a revolving fan or series of beaters operating in a single closed receiving-chamber having an inner perforated wall surrounding such fan or beaters, and inlet and outlet openings, through which the dust-laden air is conducted to the beaters, and the purified air is permitted to escape therefrom, and an auxiliary suction-fan to draw the dust-laden air through the separator. The object of the improvements is to effect a much more thorough and complete separation of the dust from the air; and to that end they consist, substantially, of a series of two or more revolving fans or sets of beaters, each inclosed in a separate receiving-chamber, through which series of receiving-chambers the dust-laden air is successively conducted, the dust-laden air from the first of such chambers being drawn therefrom at or near the axis of the revolving fan or beater, and by suitable means conducted to the periphery of the next succeeding fan or set of beaters, and so on through the series, by means of which operation a graduated and finally complete separation of the dust from the air is effected, the amount of dust separated diminishing rapidly from the first receiving-chamber to the next, and being entirely and completely removed in the last receiving-chamber, leaving absolutely nothing but air to pass into the chamber inclosing the suction-fan. In the drawings, Figure 1 is a sectional plan of the apparatus, taken longitudinally. Fig. 2 is a sectional elevation of the same, taken longitudinally. Fig. 3 is an end elevation. Fig. 4 is a vertical transverse section taken in the line  $x x$ , Fig. 1; and Fig. 5 is a similar section taken in the line  $y y$ , Fig. 1. The dust-laden air to be operated upon is taken up by the conduit  $d'$  at the middlings-purifier or other machine, and conducted into the passage  $d$  through the central orifice,  $d''$ ; from thence it passes through annular opening  $m'$  to the periphery of the first fan,  $f$ , by means of which it is rapidly revolved within the chamber  $b$ , the centrifugal action of the fan  $f$  causing the dust to be projected against the perforated wall  $b''$ , through which the main body of the dust passes. When in the surrounding chamber  $g$ , it falls and is collected in the trough  $h$ . The air and what dust remains with it pass from the chamber  $b$  through central opening  $n'$  into the intermediate passage,  $n$ , from whence it is conducted by means of annular opening  $o'$  into the next chamber,  $b'$ , where the centrifugal separation again takes place, and the remaining dust is thoroughly separated from the air, which passes on through central opening  $p'$  into the suction-chamber  $h'$  from whence it is discharged through tube  $h''$ . The separated dust from chamber  $b'$  is collected in the common conveyer-trough,  $h$ , and, together with that from the first chamber,  $g$ , is discharged from such common trough by

means of any suitable trapped valve (not herein shown) which will allow the dust to be removed without liberating the air within the chamber, as it is essential to the perfect working of the apparatus that there shall be no openings in the dust-collecting chambers. It has been found in practice so the inventors claim, that it is impossible to effect a complete separation of the dust from the air in one operation, notably where the air is heavily charged with dust, as is invariably the case in the use of machines of this class, for by reason of clogging more or less of the light dust-particles will fail to penetrate the perforated wall of the separating-chamber, and will be carried out with the air; hence it is necessary that a graduated separation should take place, which we have found is thoroughly and effectively accomplished by providing a series of separating-chambers having intermediate passages for

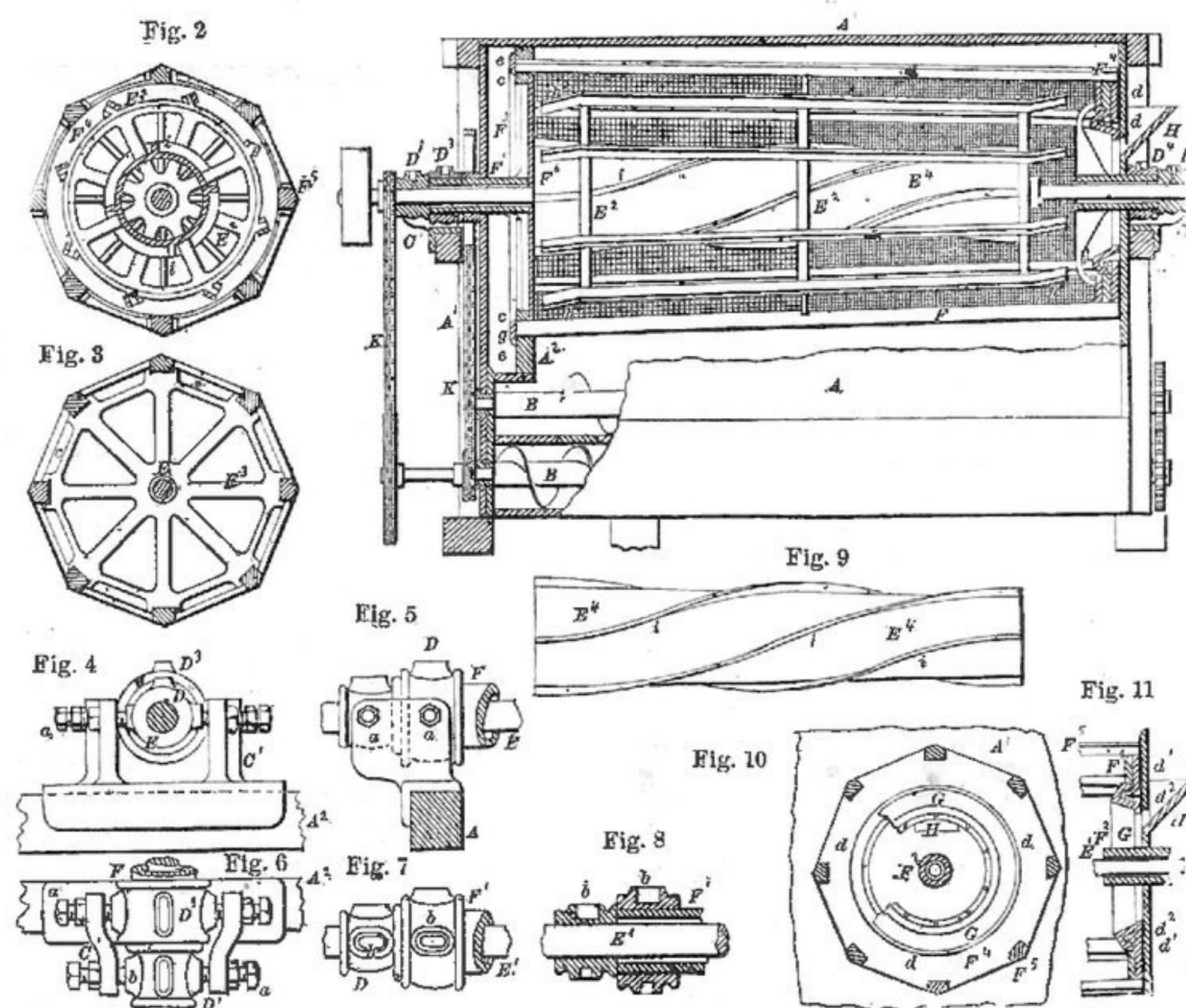
less force can be admitted to the suction-fan casing, which will correspondingly reduce the force of suction through the separator.

### CENTRIFUGAL REEL.

Letters Patent No. 302,693, dated July 29, 1884, to Arthur Henry Van Duzee, of Minneapolis, Minn. Figure 1 is a longitudinal sectional elevation. Fig. 2 is a cross-section of the reel and beater-drums on the line  $x x$  of Fig. 1; Fig. 3, a front view of the "tail-spider," with the sheet-metal covering removed. Fig. 4 is an end view, Fig. 5 is a side view, and Fig. 6 is a plan view, enlarged, of one set of the adjustable bearings. Figs. 7 and 8 are details, on the same scale as Figs. 4, 5 and 6, of the adjustable bearings. Fig. 9 is a detached view of the beater drum, Fig. 10 is a front view and Fig. 11 is a sectional side view, of the "head-spider," illustrating the manner of constructing the



PATENT NO. 302,608. APPARATUS FOR SEPARATING DUST FROM AIR.



PATENT NO. 302,693. CENTRIFUGAL REEL.

conducting the dust-laden air from a point near the axis of the first separating-chamber to the periphery of the fan or beaters in the next succeeding separating-chamber, and so on; and as in this graduated process the amount of dust to be separated decreases rapidly from the first to the second separating-chamber the centrifugal separating action, which in the first chamber is invariably retarded by the clogging of the dust at the perforations, is free and complete in the second chamber. Another important improvement in this apparatus is the adjustable opening in the suction-fan casing, for with it the force of the suction-blasts through the separator can be quickly and accurately tempered to the quality of the mixture of dust and air being operated upon, as by adjusting the opening by means of the sliding gates a counter-blast of more or

packing-rings, &c.  $A'$  is the main frame or casing, having the usual hopper-bottom and screw-conveyers,  $B' B''$ , for conveying the material away from the machine.  $A^2 A^3$  are two cross-timbers or bearing-trees, one secured across each end of or forming part of the frame  $A'$ , upon which are secured metal standards  $C' C^2$ , and between these standards are pivotally secured by set-screws  $a$ , journal-collars  $D' D^2 D^3 D^4$ , the outer collars,  $D' D^2$ , supporting the main central beater-shaft,  $E'$ , and the collars  $D^3 D^4$ , supporting hollow sleeves  $F' F^2$  to which the reel-frame is secured, as hereinafter shown. The sleeves  $F' F^2$  are made larger than the shaft  $E'$ , so that no friction occurs between their surface, and the collars are loose upon the shaft and sleeves, so that they may revolve freely therein. The collars  $D^3 D^4$  are arranged upon the extreme outer

ends of the sleeves  $F' F^2$  and both the sleeves and the collars  $D^3 D^4$  abut closely against the collars  $D' D^2$ , so that no air can pass in through the space between the sleeves and shaft. By this arrangement both the beater-cylinder and reel are suspended upon the pivots  $a$ , thereby rendering them easily and quickly adjustable to counteract any irregularity or unequal shrinking, swelling, or twisting of the parts. Upon one side of the cavities in the collars  $D' D^2 D^3 D^4$ , in which the inner ends of the pivots  $a$  sit, are longitudinal slots  $b$ , as shown in Figs. 7 and 8, so that when the shaft  $E'$  vibrates in its rapid revolution, the slots  $b$  will permit the collars to move back and forth with the shaft, and thereby prevent cramping and straining the parts. The inner ends of the sleeves  $F' F^2$  are formed into spiders or frames  $F^3 F^4$ , the head-spider being merely an open armed wheel having a wooden ring,  $F^4$ , attached to its rim, with sockets for the ends of the ribs  $F^5$  of the reel, while the tail-spider is formed with sockets for the opposite ends of the same ribs  $F^5$ . A sheet-metal plate,  $F^6$ , is secured to the inner face of the tail-spider  $F^3$ , fitting the shaft  $E'$  closely, and projecting outward nearly to the ribs  $F^5$ , leaving small spaces  $c$  for the escape of the tailings from the reel between each pair of the ribs  $F^5$ . Small wooden bars  $d$  (see Fig. 3) will be arranged to connect the ribs  $F^6$ , upon the spider  $F^3$ , to which the ends of the webs of bolting-cloth will be tacked, while the other ends of the cloth will be tacked directly to the ring  $F^4$ , which will be made six, eight, or ten sized, according to the number of the ribs  $F^5$  used in the reel. The head end of the reel is smaller than the tail end, so that a downward slope is imparted to the lower section of the reel, to cause the material to be carried from the head to the tail end of the machine as the parts are revolved.  $G$  is a doubly-angular circular ring, attached to the inside of the head end of the frame  $A'$ , around the sleeve  $F^2$ , and having a backwardly-projecting rib or flange,  $d'$ , fitting into a corresponding circular cavity or channel,  $d''$ , in the ring  $F^4$ , so that a packing-ring is formed to prevent the material from escaping or being driven backward by the action of the beaters, &c.  $H$  is the feed-spout, through which the material is fed to the machine through the head of the frame  $A'$ , and also through the packing-ring  $G$ . This packing-ring, as will be seen, is formed slanting on both sides, so that no material will lodge upon it. The ribs  $F^5$  do not reach quite to the tail end of the frame  $A'$ , but stop short of it and revolve in a bulk-head or partition,  $A^4$ , leaving a space,  $e$ , into which the tailings are discharged. The joint between the bulk-head  $A^4$  and reel is covered by a flat ring or shield,  $g$ , to prevent the passage of air-currents back and forth. Attached to the shaft  $E'$ , at suitable intervals, are spiders or frames  $E^2$ , across whose outer rims inclined or tangentially-arranged beaters  $E^3$  are secured, the beaters being parallel with each other and also parallel with the reel ribs  $F^5$ —in other words, the outward tapers of the reel and the beater-cylinder from the head to the tail are equal, leaving the space between the ribs and beaters of the same width throughout. For a short distance the beaters at the head end are bent off at a slight angle, as shown at  $h'$ , toward the direction in which the beater-cylinder is revolved, while the ends at the tail end are bent off at a similar angle in the opposite direction, as shown at  $h''$ . By this simple means the material as it enters the machine is caught by the bent ends  $h'$  of the beaters, and carried along the reel and started on its course toward the tail, thereby preventing any clogging at the feed end, while the bent ends  $h''$  catch the material and force it out through the discharge-ports  $c$ , thereby preventing any clogging at the tail end of the machine. Attached to the



shaft E', inside the beaters E<sup>3</sup>, is a sheet-metal or other drum, L<sup>4</sup>, tapered in the same proportion as the beaters and reel, and armed upon its exterior with spiral ribs *z*, as shown more clearly in Fig. 9. The rapid revolution of the beater-shaft and beaters confines the air between the beaters and beater-shaft, and would, were it not prevented, cause a large percentage of fine material to pass through this air-space and be carried off with the tailings; but by using the ribbed cylinder or drum E<sup>4</sup> all such loss is prevented, as all the material is thrown outward; hence no portion escapes the action of the beaters and the cloth. The ends of the drum E<sup>4</sup> are made air-tight, so that no material can get inside of it. The ribs *z* on the drum E<sup>4</sup>, being spirally arranged, not only serve to throw the material outward, but also serve as a conveyor to feed it along toward the tail end of the machine. The shaft E' will be revolved by any suitable means, (preferably by a belt acting on a pulley, E<sup>6</sup>.) at a speed of about two hundred revolutions per minute, while the reel will be revolved in the same direction, but at a speed of only about eighteen revolutions per minute. This difference of speed may be obtained by any suitable means, but the

usual arrangement of chains and sprocket-wheels K is shown.

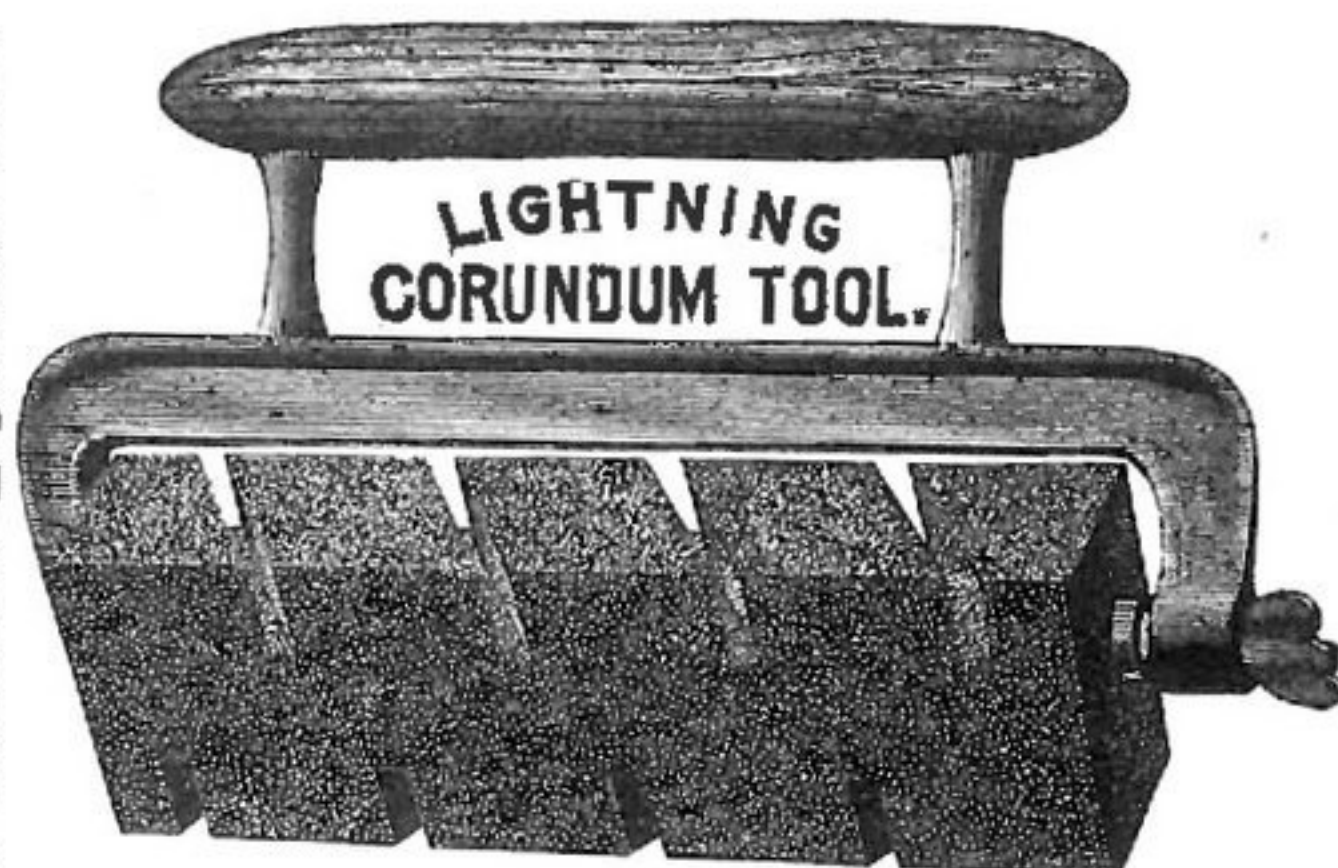
\* \* Dr. J. Moritz, of the Royal Horticultural College at Geisenheim, has succeeded in preserving grapes in their natural form and color. The medium which proved most suitable was a 20 per cent. solution of sugar, containing 0.2 per cent. of salicylic acid. The grapes to be preserved were placed in a well-stoppered glass bottle, which was then filled with the syrup. After five months they had not altered in color or form.

\* \* According to the Meteorological summary for July, compiled at Chief Signal Office, last month was exceptionally cool, being in fact the coolest July in the past 13 years. This condition of the weather was the rule all over the country. The watering places have generally suffered in consequence of low temperature.

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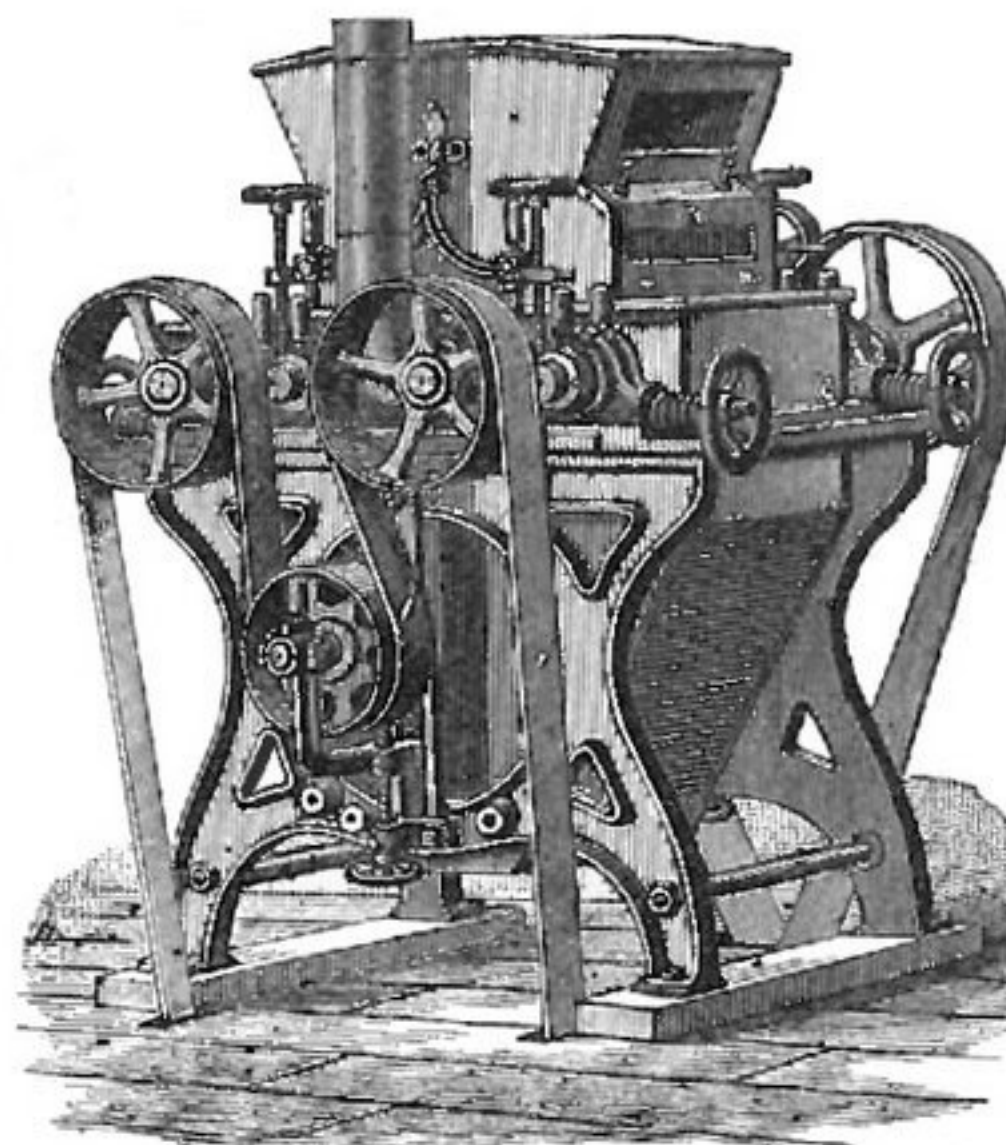


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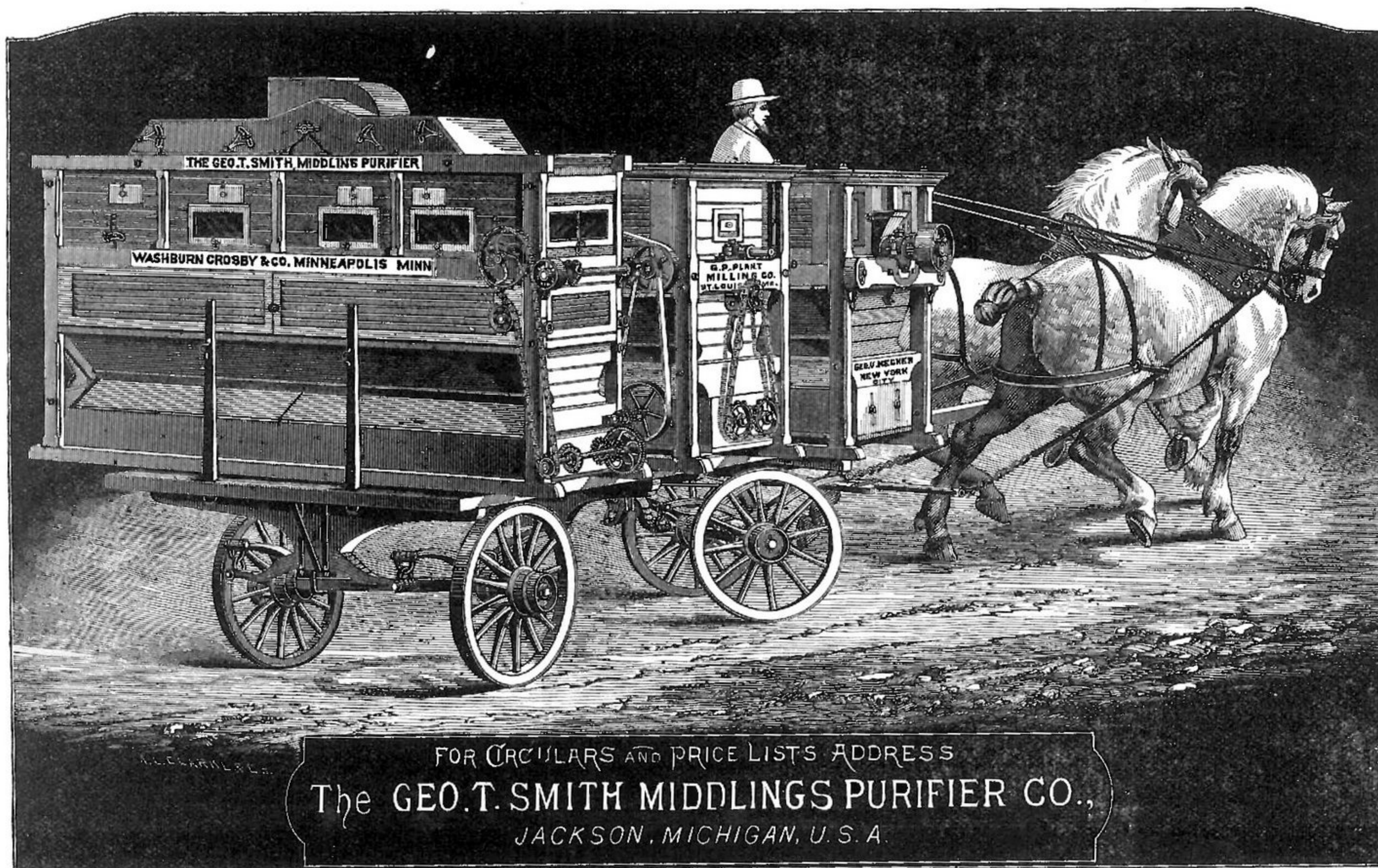
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### A NEW USE FOR EUCALYPTUS TREES.

THE patenting of a process for the manufacture of a preparation of a gum of the *Eucalyptus globulus*, which has the effect of thoroughly removing the scales which form on steam-engine boilers and preventing rust and pitting, has caused the formation of a company and the erection of a factory at Piedmont with a capacity of 1,000 gallons a day and employing thirty men. The result of the introduction of this preparation has been to create such a demand for it both in this country and in Europe, that within a few months the company contemplates increasing the producing capacity of its factory and employing a force of over a hundred men. The effect of this preparation in preventing the pitting and corrosion of boilers will, it is expected, extend the period of their usefulness 100 or 150 per cent., and at the same time effect a great saving in fuel, as scale is a non-conductor of heat, and, therefore, more fuel is required to generate steam in old boilers than in clean new ones. This may, if all that is claimed is true, tend to decrease the manufacture of boilers, but, on the other hand, will lessen the liability of explosions. The company have also embarked in the distillation of the essential oils of the *Eucalyptus globulus*, which are extensively used for medicinal purposes, and which have heretofore been supplied by Australia, it being found that the oils can be produced at profit. With the object in view, the company propose to set out extensive forests of eucalyptus trees, in order to have at its command a sufficient supply of leaves, the portion of the tree consumed in the manufacture of the oils.

### THE USE OF NATURAL GASES.

It is well known that the natural gases of Western Pennsylvania are composed of the most volatile of the hydro-carbons, known as paraffines, and of marsh gas. The outflow of some of the wells contains as much as 80 to 90 per cent. of marsh gas. It is frequently mixed with ethane, hydrogen, carbonic acid and nitrogen gases. At East Liverpool, Ohio, wells have been burning for twenty-five years, and are still productive. At Beaver Falls, Pa., natural gas has been in use for six years. At Erie, Pa., the supply has become partially exhausted. At, or more correctly, around Pittsburgh, Pa., there are prolific gas belts to tap. Quite a number of the manufacturing establishments of Pittsburgh are using this gas. The wells are generally struck at a depth of 1,000 feet. The falling off in supply is more often due to the choking up of the pipe by deposits of salt than to actual exhaustion at the source. One concern, an exchange tells us, who has been using the gas for some time makes the following reports: Well No. 1 has been in use for nine years, and is still flowing; No. 2 has been used four years, and is still flowing, though with diminished force; No. 3 is of no account; No. 4 shows a diminished pressure; No. 5 after five years service is useless; No. 6 has been in use for six years, but is now nearly exhausted; No. 7, in use five years, is now exhausted; No. 8 was drilled a little over a year ago, and is still good. All these wells are situated in Butler County, Pa. So far 150 companies have been chartered to bore for gas, representing a capital stock of over \$2,000,000. The gas is free from sulphur and other deleterious elements, and hence makes better iron and steel and glass than coal fuel. The boilers last longer,

steam is more regular, less cold air is introduced, less attention is required and there are a number of minor advantages which make this fuel very desirable. The ordinary way of utilizing this gas is by means of a small gas pipe, with a row of small holes drilled in its side. The cost of introducing the gas into blast furnaces has been reported as high as \$470. By its introduction, however, the Edgar Thompson Steel Works were able to dispense with the services of 82 coal-heavers and firemen. The great difficulty seems to be in providing for the means to properly admit a sufficient supply of air, without which there is little, if any, economy. But our engineering talent will eventually be equal to this emergency.

### BRAIN WORK.

The London *Lancet* says: "Brain tension is not a proof of strength, but of weakness. The knit brow, straining eyes and fixed attention of the student are not tokens of power, but of effort. The intellectual man with a strong mind does his brain work easily. Tension is friction, and the moment the toil of a growing brain becomes laborious it should cease. We are unfortunately so accustomed to see brain-work done with an effort, that we associate effort with work, and regard tension as tolerable, if not natural. Indeed, people are frequently misled to the extent of considering the knit brow, straining eyes and passive dignity of a worn countenance for indispensable attributes of great learning, while in fact they only are signs of intellectual debility. As a matter of fact, no man should ever knit his brow as he is thinking, or in any way evince effort as he works. The best brain work is done easily, with calm spirit and equable temper, and in jaunty mood. All else is the toil of a weak or ill-developed brain straining at a task too great."

\* \* The experience of the Winchester Arms Company, of New Haven, Conn., according to the *Metal Worker*, in the matter of artesian-well boring is somewhat peculiar, and from present accounts seems of a sufficiently discouraging nature to make farther prosecution of the work doubtful. The company use a large quantity of water daily, and, in order to effect a saving in water bills, commenced sinking an artesian well on their premises some two years ago. All the necessary preparations were made, and the work of putting down a six-inch hole was begun by a contractor of long experience in the Pennsylvania oil regions. In a month the hole reached a depth at which ordinarily plenty of water is found, but in this case the bore remained perfectly dry. A fresh contract was made, and then another and another, but still no water was reached. At length sandstone was struck, and this made progress more than ever slow. Up to the present time the total cost of the operations is estimated at \$18,500, and the company now find themselves with a hole within a few feet of half a mile deep on their hands, with no water in it. To make matters still worse, it was found that a chunk of iron has fallen to the bottom of the shaft, thus effectually crippling the work of the drill. It is thought that it will take about three months to bore through it, and the contractor is now in search of suitable apparatus with which to fish out the obstruction. If it fails, the well will probably be given up.

\* \* The first electric railroad for public use in America went into operation in Cleveland, an July 27, in connection with the East Cleveland Street Railroad Company, which has just completed a mile road. The experiment was so successful that the company expect to change their entire system, comprising over twenty miles, into electric roads. The system used was a combination of the

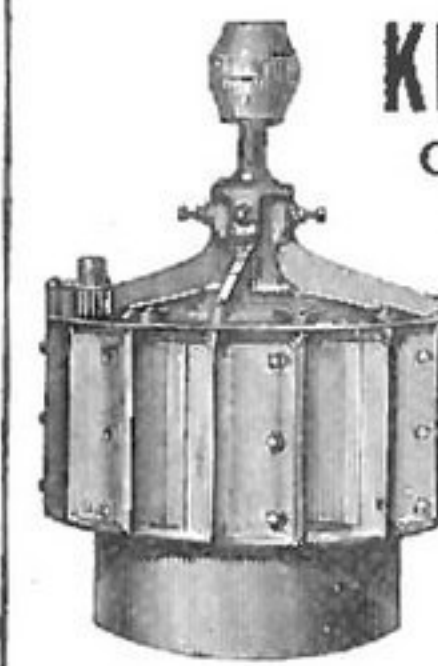
Brush and Knight and Bently systems, and the current was carried on underground conductors laid in conduits like those of cable roads. The cars were started and stopped and reversed with the greatest ease. Any number of cars up to fifteen can be run at one time on a single circuit, and from one machine, which is a result not attained by any of the European systems now in operation. The success of the new road has made a great sensation in both street railroad and electrical circles, and is expected to greatly extend the field of electrical development, as well as enhance the value of street railroad properties.

\* \* There have been various theories at different times as to the nature and origin of petroleum. The first is that the oil has been distilled in the bowels of the earth from bituminous shale at a very high temperature, and was all produced at one excited and phenomenal period in the world's history. The other is that the oil is the result of distillation from bituminous shale at a low temperature, beginning almost with the formation of the strata, and still continuing. The fact that the supply in America never seems to get nearer exhaustion, in spite of the enormous drain upon it, favors the latter theory. There have been repeatedly sudden diminutions in the supplies of certain areas, and sometime a total disappearance, but new districts are always being discovered, and the yield goes on fluctuating from time to time in rate, but always maintaining its volume.

\* \* Charts of the geographical distribution of the lightning strokes for 1882 and 1883, prepared from our fire records, says the *Insurance Chronicle*, show that they are chiefly confined to that part of the country situated north of the Ohio river and east of the Missouri river. In both years 85 per cent. of all the strokes occurred within this area. In the Southern states lightning seems to be comparatively rare, and seldom occurs outside of three states—Texas, Louisiana and Georgia. There seems to be two principal centers of electrical disturbance, from the fire underwriter's standpoint, and these are in the New England and Northwestern states. Sixty-five per cent. of the strokes happen in the summer; the remaining 35 per cent. are divided between spring and autumn in about equal proportions.

\* \* The New England Insurance Exchange has declared war upon oil stoves. The use of gasoline stoves for heating or cooking is absolutely prohibited, and special permits must now be obtained for the use of kerosene oil stove burning in a gaseous form. The oil stoves burning by means of wicks are permitted, as heretofore. This action has been taken in view of the constantly increasing number of fires reported from oil and gasoline stoves. Gasoline stoves are not so largely used in New England as in the West. They are considered very hazardous, and the insurance men desire to keep them out of New England. Their use is not only prohibited in houses but for drying and heating shops.

\* \* The mines of the Comstock vein, Nevada, are exceptionally hot. At depths of from 1,500 to 2,000 feet, the thermometer placed in a freshly drilled hole will show 130 degrees. Very large bodies of water have run for years at 155 degrees, and small bodies at 170 degrees. The temperature of the air is kept down to 110 degrees by forcing in fresh air cooled over ice. Captain Wheeler, U. S. Engineers, estimated the heat extracted annually from the Comstock by means of water pumped out and the cold air forced in, as equal to that generated by the combustion of 55,560 tons of anthracite coal, or 97,770 cords of wood.



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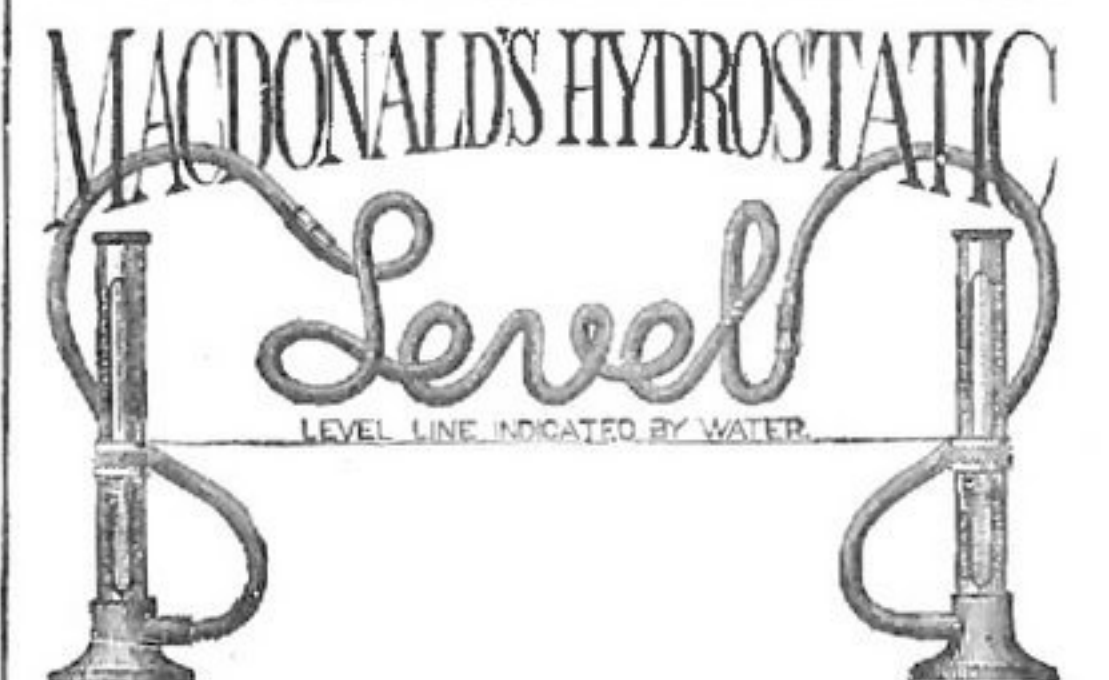
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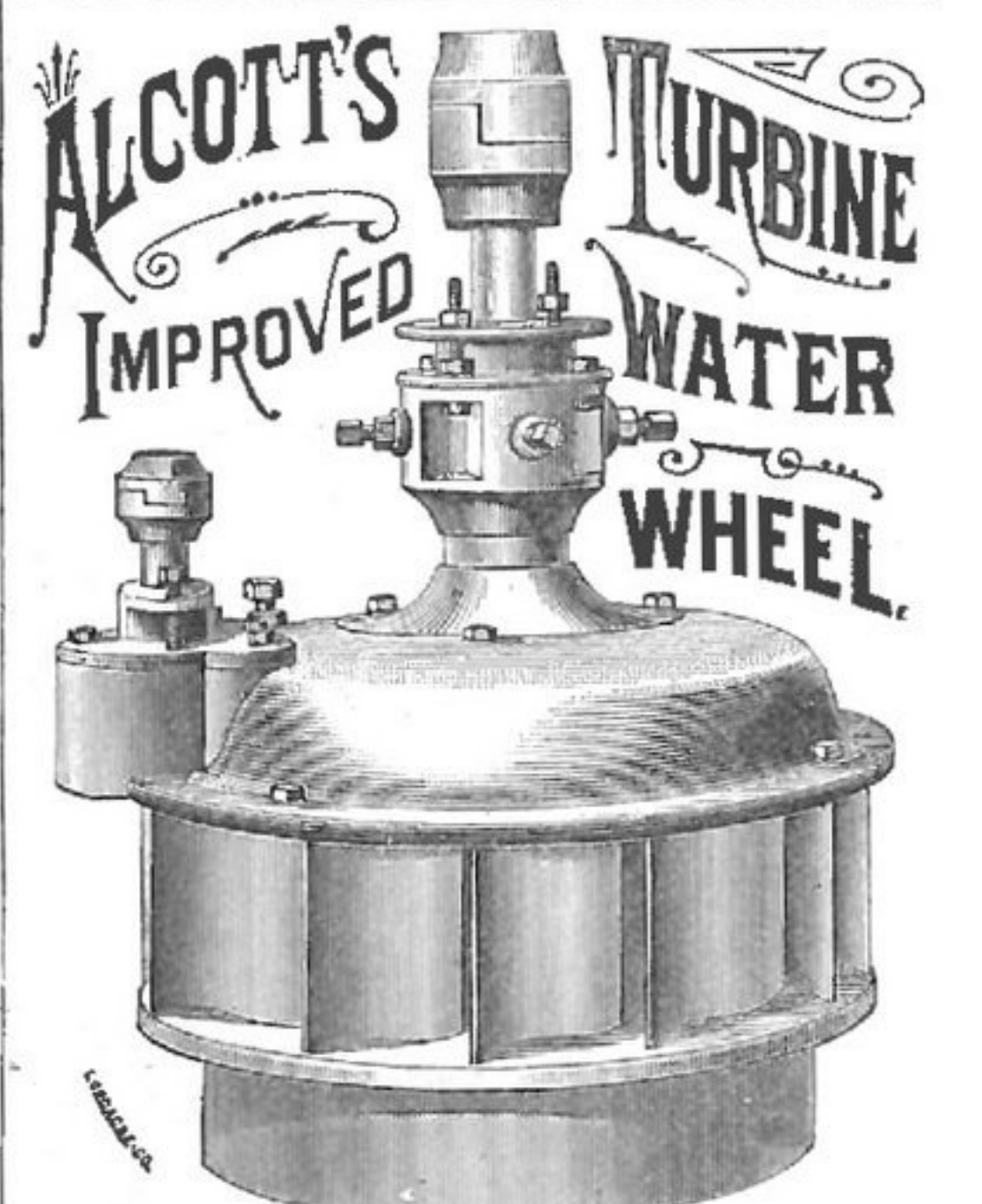


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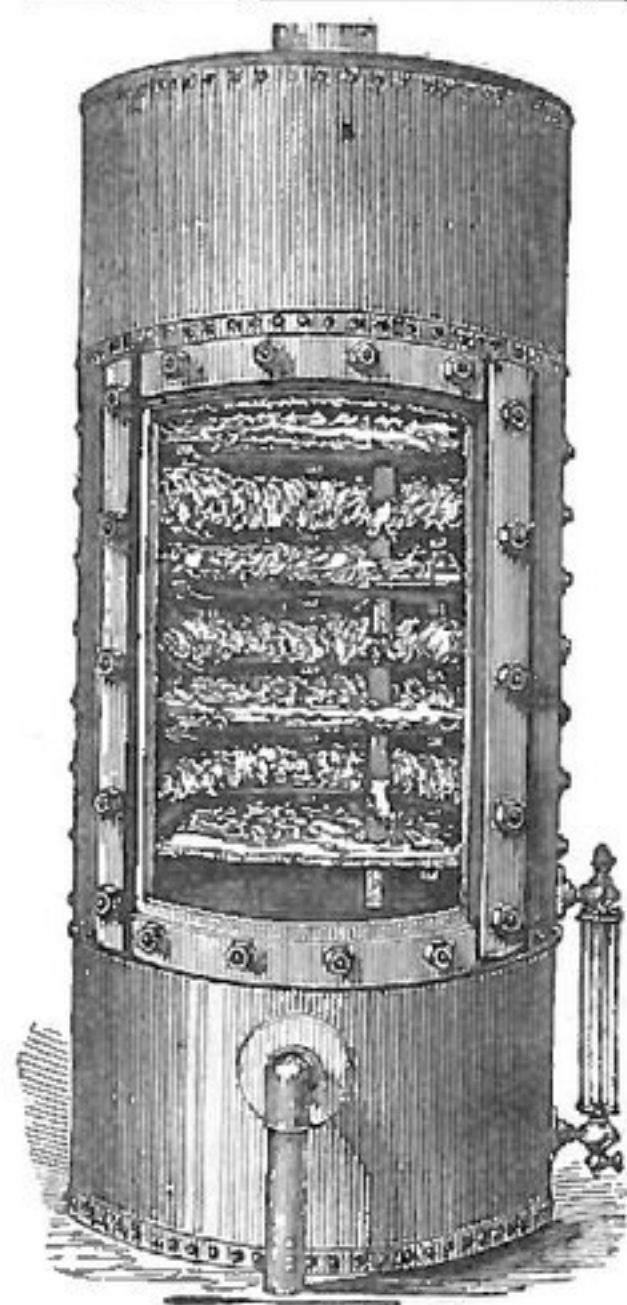
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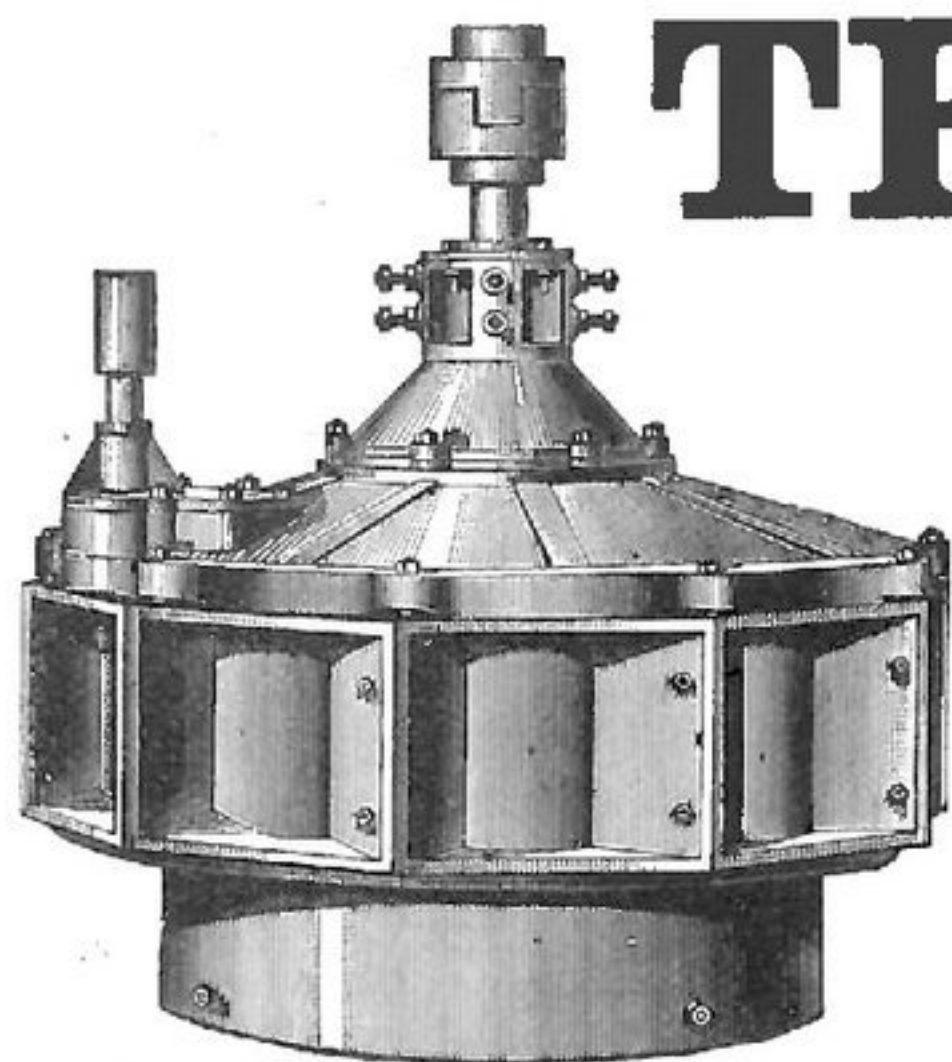
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24 Inch Wheel.....	.8073	.7878	.7275	.6796
30 Inch Wheel.....	.8000	.8011	.7814	.6850

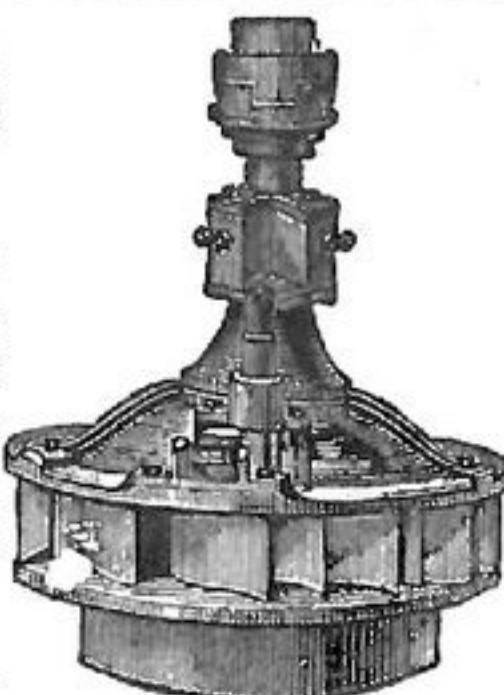
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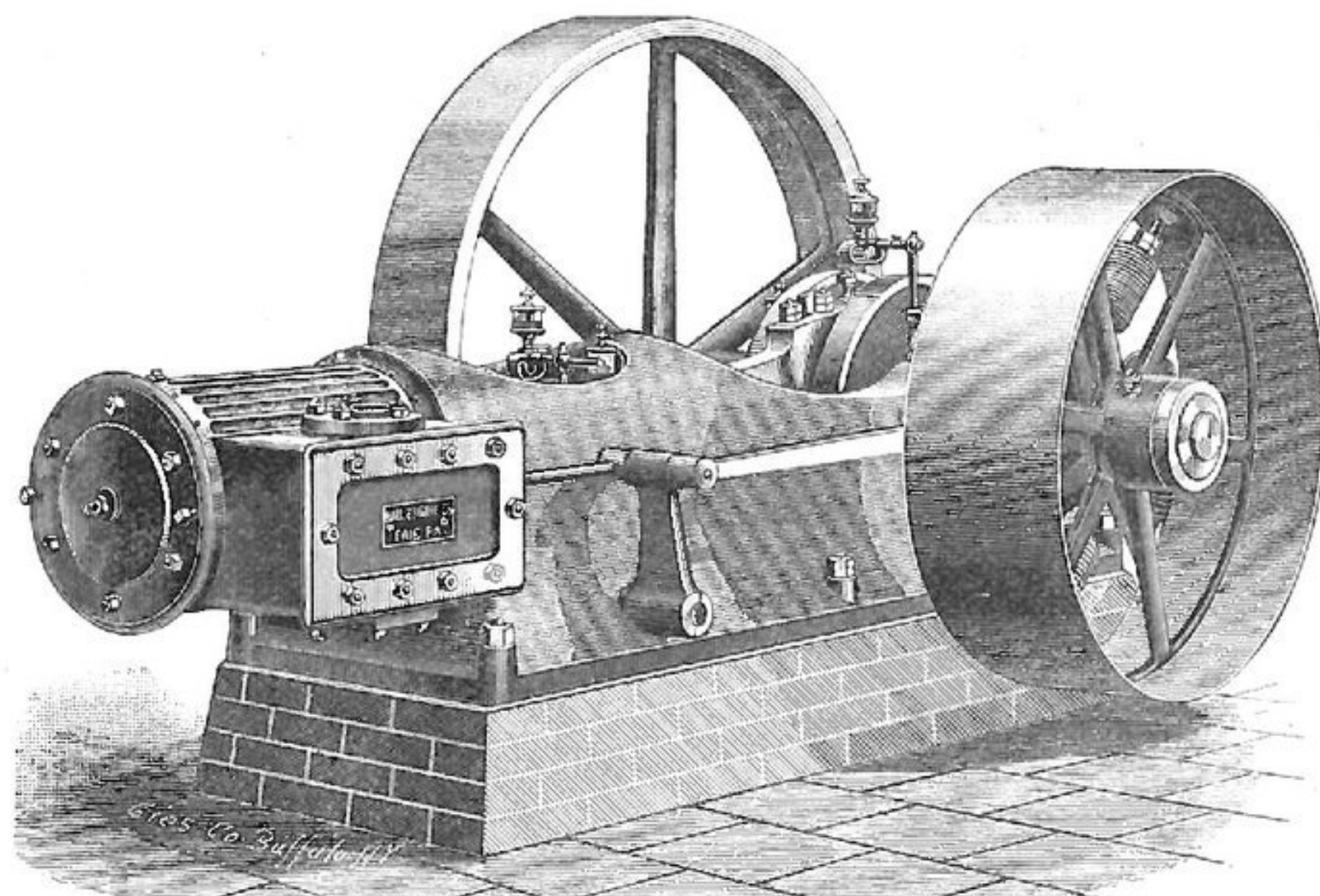
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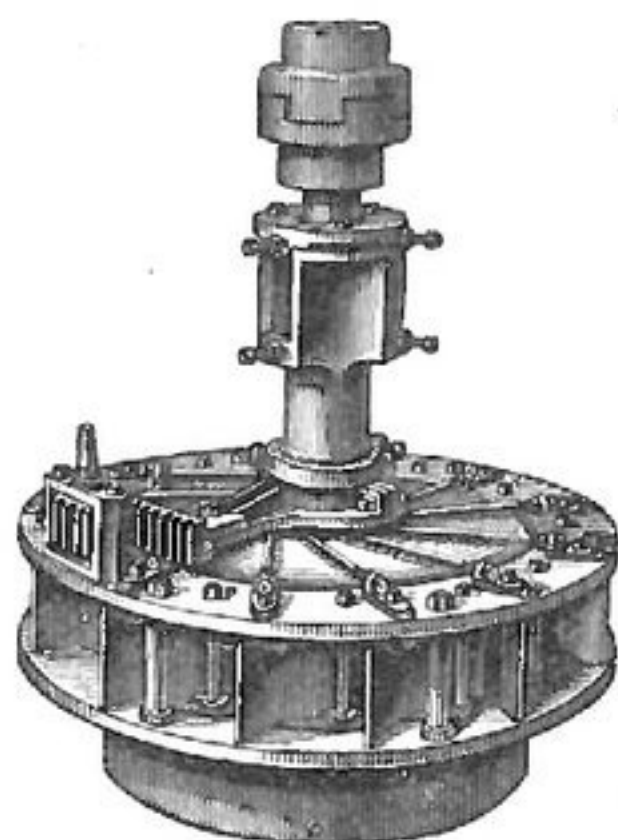
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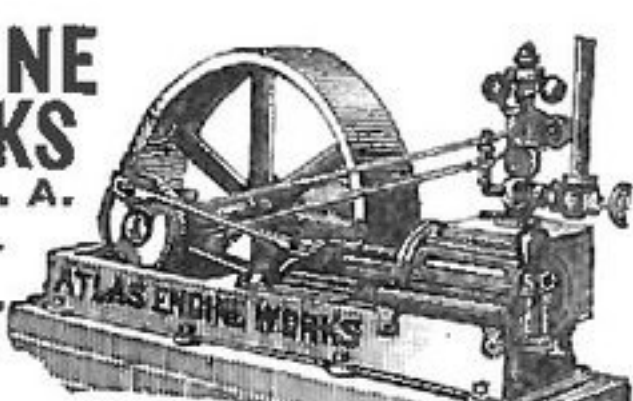
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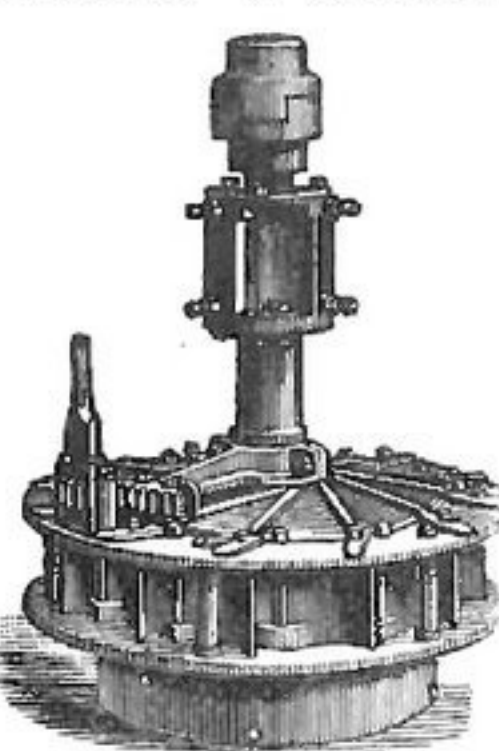
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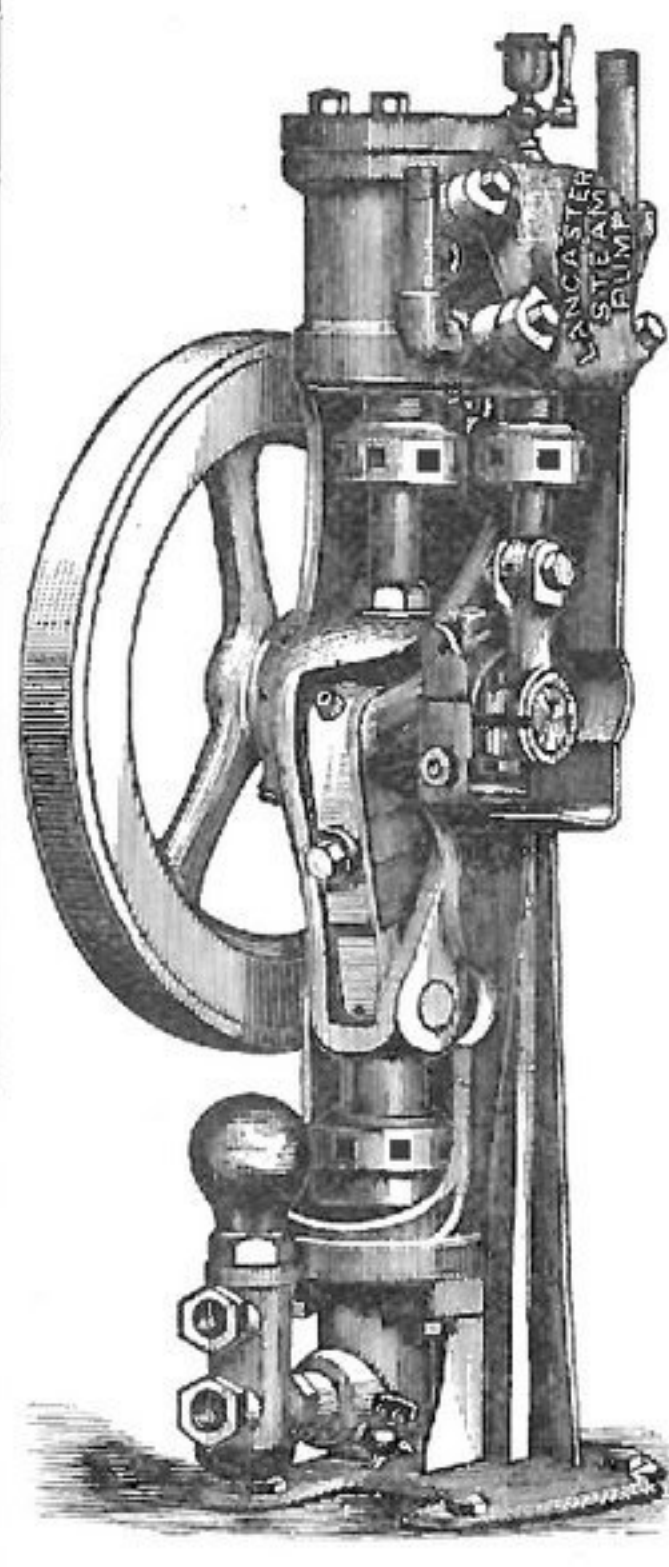
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**EZRA F. LANDIS, PROPRIETOR, LANCASTER, PENN.**







## OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

THE MILLS KEEP RUNNING, BUT DULLNESS IS THE RULE WITH FLOUR—NEW WHEAT COMING IN WITH SOME FREEDOM—A BIG CROP AND LOW PRICES PROMISED—THE MILLERS' ASSOCIATION LOSES A MEMBER—GOSSIP & NOTES.

The milling business has its ups and downs, and just now in Minneapolis it is down, if we're to judge by the doleful utterances of our millers. The rosy condition of things which we outlined in our last letter was of short duration, the flour market having again receded to an unsatisfactory level. Ocean freights have been advanced, as well as railroad rates, which has had the effect of reducing export business. At the same time, wheat has gone up some, and while exporters are ready to take freely of flour at the prices, millers are not in a position to sell on that basis. Eastern trade, however, is quite active, and many of the mills have sold ahead, but prices are being shaded to some extent.

The flour production does not vary greatly from 100,000 barrels per week. Some weeks it is over that figure, and then again under, so that on an average the daily output is not far from 16,500 barrels. There are nineteen mills running this week, leaving only three shut down. The production bids fair to be kept up close to the hundred thousand notch until the new crop. The greater number of our firms have large quantities of old wheat on hand, for which they have paid much more than they can now sell it for, and about the only alternative left them is to grind it into flour. We are authoritatively informed that some of this wheat has cost as high as \$1.20 per bushel, counting storage, interest, etc. The West Side Water Power Company wishes to put a new iron cover over the canal, but the mills are not willing to shut down long enough to permit it to be done.

Quotations of flour in Minneapolis are as follows: Patents, \$5.25@5.60; straights, \$4.60@5.00; first bakers', \$4.25@4.50; second bakers', \$4.00@4.25; best low grades, \$2.15@2.50 in bags; red dog, \$1.60@1.80 in bags.

The receipts and shipments of Minneapolis for two weeks are exhibited in the annexed table:

FLOUR		
Week ending	Receipts.	Shipments
	Bbls.	Bbls.
July 29, . . . . .	370	82,888
Aug. 5, . . . . .	625	87,893
Total . . . . .	995	170,781
WHEAT.		
Week ending	Receipts.	Shipments
	Bus.	Bus.
July 29, . . . . .	204,500	46,500
Aug. 5, . . . . .	204,000	46,000
Total . . . . .	408,500	61,500

The first new wheat that has arrived in Minneapolis came in to day over the Manitoba road from Big Lake. The berry is excellent and it weighs fifty-nine pounds to the bushel. This car graded No. 1, containing too much wheat of soft varieties to pass as hard.

There were free offerings of wheat on 'change to day, and the market was weak and declined. The advance of Thursday was all lost, and instead of there being buyers at 94c. for No. 1 hard, there were sellers at 93c, though some holders refused to accept anything less than 94c. No. 2 hard opened at 90c. with only a moderate demand, and at the close declined to 89½c., with 88½c. bid. No. 1 was dull and neglected. Other grades were about steady.

Samples of new wheat are coming in, and they are of a uniformly high grade and quality, while the crop is at least two weeks in advance of the usual time. Millers entertain the belief that, unless something unprecedented should happen, they will have one of the best crops of wheat in quality ever milled. Reports now coming in regarding the crops refer mainly to the progress of harvest. In Minnesota the weather is cool and very favorable for work. Along the line of the Minneapolis & St. Louis road wheat is about two-thirds cut, and the close of the week will see most of it in shock. Some harvesting is being done in the vicinity of Glyndon, but the work in the Red river valley will not fairly begin before next week. On the Fergus Falls division of the Manitoba

harvesting has commenced in many places. In Manitoba rain caused a remarkable growth of straw, but the grain is now rapidly maturing, the weather being very warm. Harvest commenced this week on the Bell farm, at Indian Head, where 9,000 acres are under crop. Wheat is above the average. The wheat crop of Minnesota is estimated at 40,000,000 to 45,000,000 bushels. Low prices are expected to prevail unless some accident should happen to the rapidly ripening grain.

Another firm has cut loose from the Minneapolis Millers' Association, or will, in sixty days, it is this time being D. R. Barber & Son, owners of the Cataract mill. They have been prompted in taking this step by a belief that the association isn't so much of a benefit to the little fellows as it is the big ones. The big fellows—the Pillsburys and the Washburns, for instance—get to bullying things occasionally, and carry the smaller concerns irresistibly along with them, whether their inclinations are that way or not. Last year the association loaded up heavily with wheat and the market has been on a decline ever since, making some of the members pretty sick. Messrs. Barber & Son think that there are chances for a small mill to buy its wheat more cheaply outside of the association than in it, and as the crop this year promises to be abundant and fine, they have decided to try the battle alone. The capacity of their mill is 600 bbls. The other mills, not members of the association, are the Columbia 1,000 bbls; Union, 300 bbls; Holly, 250 bbls; and Phoenix, 250 bbls—total 2,300 bbls. daily. There is left in the Association about 2,300 bbls. capacity, with no prospects of other defections. It is stated that the association, having awakened to the fact that the spring wheat crop has become too large to be entirely handled by it, has decided not to buy wheat on any of the transit roads this year, but confine their attention entirely to the Northern lines running through the hard wheat country. By taking care of the best hard wheat the millers can buy all the secondary grades they want in open market, and get it cheaper than by adhering to their former plan of trying to control the entire crop.

The receipts of wheat keep up pretty well for this time of the year, though the local surplus is being drawn on more than formerly. The amount ground in the past two weeks has been about 800,000 bushels, while the receipts, less shipments, amounted to 375,000 bushels. The stock in store here now is about 1,200,000. Of this, 265,000 bushels are No. 1 hard; 130,000 No. 2 hard; 550,000 No. 1 regular; 120,000 No. 2, and 10,000 No. 3.

The Head Millers' Association received \$1,921.75c from its excursion, and cleared \$395. At its regular monthly meeting Tuesday evening, three designs of monuments were shown, but all action was deferred for another month, that other parties might have a chance for the competition. The designs already submitted show very fine monuments, to cost about \$3,500.

The Crown Roller and Columbia mills will shut down in a few days to admit of tail race being deepened about four feet. The time necessary for them to remain idle will be two or three weeks.

E. S. Collins is building a 150-barrel mill for parties at Royalton, Minn. He erects the mill from foundation up, and is now at work on it.

The Pillsbury A mill has been fitted up with a private fire alarm box. The Washburn A and C mills also have boxes of their own.

John Dunn, of Oswego, N. Y., was in the city a few days since, inquiring about chances for getting into the business here.

John Kelner, late of the La Grange mill, Red Wing, now has charge of one of Kidder Bros. mills at Terre Haute, Ind.

Arthur Van Duzee, formerly with Chisholm Bros. & Gunn, has received a patent on a centrifugal reel.

J. H. Hogan, traveling for Kirk & Fender, is home from the southwest, but he soon goes Kansasward.

J. F. Littrell, August Heine's drummer, is doing the town.

Fred Pillsbury has gone to Europe.  
Minneapolis, Aug. 8.

CALEB.

## Notes from the Mills.

Several elevators are to be built this fall on the Moorhead Northern road.

E. P. Allis & Co., Milwaukee, Wis., will furnish the Daisy Roller Mill, Milwaukee, with a Gray's noiseless belt roller mill.

The Case Mfg. Co., Columbus, Ohio, have an order from Burroughs & Pierson, Flint, Mich., for a No. 2 single purifier.

The Case Mfg. Co. have an order from J. J. Brooks, Conshohocken, Pa., for one pair rolls with patent automatic feed.

A. Phelps, Delavan, Wis., has placed an order with E. P. Allis & Co., Milwaukee, Wis., for a Gray's noiseless belt roller mill.

The Case Mfg. Co., Columbus, Ohio, have an order from Thos. Sharp & Co., Salem, Ohio, for two pair rolls with automatic feed.

Chamberlain & Post, Bull City, Kan., have their order with the Case Mfg. Co., Columbus, Ohio, for breaks, scalpers, purifiers, etc.

The Case Mfg. Co., Columbus, Ohio, have lately furnished S. J. Munger, Warsaw, N. J., with two pair rolls with patent automatic feed.

An order from L. H. Seidell, Allentown, Ohio, for two pair rolls, with patent automatic feed, has been given to the Case Mfg. Co., Columbus, O.

Camp, Geiger & Beebe, Union City, Pa., have ordered a porcelain roller mill, in Gray's noiseless belt frame from E. P. Allis & Co., Milwaukee, Wis.

Webber & Sons, Florence, Neb., have placed their order with E. P. Allis & Co., Milwaukee, Wis., for one No. 2 four-break reduction machine.

The Case Mfg. Co., Columbus, Ohio, have an order through Wm. E. Catlin & Co., Chicago, Ill., for four pair rolls for G. G. Bonus, Sheldon, Iowa.

The Great Western Mfg. Co., Leavenworth, Kan., has ordered ten pairs of rolls, with patent automatic feed, from the Case Mfg. Co., Columbus, Ohio.

A Gray's noiseless belt roller mill has been ordered for the Middleport Flour Co., Middleport, Ohio, E. P. Allis & Co., Milwaukee, Wis., having the contract.

The Case Mfg. Co., Columbus, Ohio, have an order from McClain & Hunt, Ball Vernon, Pa., for breaks, rolls, purifiers, centrifugals, scalpers, bolting reels, etc.

Oscar Stevens, Clear Lake, Iowa, has ordered six pairs of Allis rolls in Gray's noiseless belt frames, from the establishment of E. P. Allis & Co., Milwaukee, Wis.

An additional order from the Edgerton Mill Co., Edgerton, Kan., for one pair rolls with patent automatic feed, has been placed with the Case Mfg. Co., Columbus, Ohio.

J. W. Hawkins, Madison C. H., Va., has placed his order with S. Morgan Smith, York, Pa., for a Success water wheel and a lot of machinery for improving his mill.

B. F. Groff, Owings Mills, Md., has ordered from S. Morgan Smith, York, Pa., a Success water wheel, which will work under a head of 50 feet, furnishing power for his large mill.

The Case Mfg. Co., Columbus, Ohio, have an order from F. R. Fletcher, Decorah, Iowa, for two pair rolls, with patent automatic feed, to be shipped to J. T. Graham, Rockford, Iowa.

Fire destroyed the flouring mill of H. S. Spurim & Co., on the Milwaukee river, at Port Washington, Ozaukee county. The total loss was \$18,000, and was covered by insurance.

E. P. Allis & Co., Milwaukee, Wis., will furnish the mill of Richards & Foote, Middleton, Idaho, with nine pairs Allis rolls in Gray's noiseless belt frames, and other special machinery, etc.

E. P. Allis & Co., Milwaukee, Wis., have an order from Jas. Huxtable, Hornings Mills, Ont., for ten pairs of Allis rolls in Gray's noiseless belt frames and complete outfit for full roller mill.

Geo. Tranger, Pleasant Unity, Pa., has placed an order with E. P. Allis & Co., Milwaukee, Wis., for a No. 2 four break reduction machine and four pairs of Allis rolls in Gray's noiseless belt frames.

Through the Bass Foundry & Machine Works, Fort Wayne, Ind., a Gray's noiseless belt roller mill for C. R. Cooley & Son, Hartford City, Ind., will be supplied by E. P. Allis & Co., Milwaukee, Wis.

A Mississippi man whose time hung heavy on his hands, counted the number of grains in a bushel. He found 72,130 of corn, 132,000 of wheat, 109,900 of peas, and 164,166 of cotton seed.

W. H. Hardsie, N. C., has placed his order with S. Morgan Smith, York, Pa., for one of his largest Improved Success water wheels, and the machinery for driving a circular saw and other mills.

Elijah Kunkle, Alpine, York Co., has ordered from S. Morgan Smith, York, Pa., another of his 48-inch Improved "Success" turbine wheels, which will be placed in his flouring mills now being remodeled.

E. N. Sipperly, West Port, Conn., has contracted with S. Morgan Smith, of York, Pa., for a 42-inch No. 2, and a 30-inch No. 2 Success water wheels, and all machinery for the remodeling of his mills.

Canon City Milling Co., Canon City, Col., have placed their order with E. P. Allis & Co., Mil-

waukee, Wis., for twelve pairs of Allis rolls in Gray's noiseless belt roller frames, and necessary machinery to make a complete outfit.

One "Little Giant" break machine and scalper combined, making three separations, and two pair of rolls with patent automatic feed, will be placed by the Case Mfg. Co., Columbus, O., in the mill of Wiet & Wiley, Naponee, Wis.

Mr. J. T. Beckwith, Cameron Mills, Steuben county, N. Y., has placed his order with S. Morgan Smith, of York, Pa., for a 48-inch No. 2 Success water wheel. This is the second wheel ordered by Mr. Beckwith lately from Mr. Smith.

The mill of Stanford, Logan & Co., Black Earth, Wis., is to have six pairs of Allis rolls in Gray's noiseless belt frames, together with special machinery to refit the mill to the roller system, from the establishment of E. P. Allis & Co., Milwaukee, Wis.

D. M. Willis, Ridgeway, Ill., has decided to change his mill to the roller system, and has, after carefully investigating the different systems, placed his order with the Case Mfg. Co., Columbus, O., for a full line of breaks, rolls, purifiers, centrifugals, scalpers, etc. Fourteen pairs of rolls will be used.

Through James Rigby, Winchester, Va., the Case Mfg. Co., Columbus, O., have secured the order of J. C. Beery, Edon, Va., for a complete outfit of breaks, rolls, purifiers, centrifugals, etc., for a full gradual reduction mill on the Case system. Twelve pairs of rolls with patent automatic feed will be used.

The Case Mfg. Co., Columbus, O., have been awarded the contract of J. S. Allender, Keyser, W. Va., for a complete outfit for a full gradual reduction mill on the Case system. Ten pairs of rolls, with patent automatic feed, in connection with their scalpers, purifiers, centrifugals, bolting chests, etc., will be used.

Articles of incorporation of the Winona Automatic Windmill Company, with a capital stock of \$25,000, were filed in the office of the Secretary of State, at St. Paul, Minn., recently. The incorporators are L. J. Woods, W. F. Phelps, Samson Fleishman, D. E. Vance, John Kunan, Harman Waldron and J. H. Nagler.

The Case Mfg. Co., Columbus, O., have secured the contract of Mattes & Katterer, Odebolt, Iowa, for a full line of machinery for a complete gradual reduction mill on the Case system. Twelve pairs of rolls, with patent automatic feed, will be used in connection with their purifiers, scalping reels, centrifugals, bolting chests, etc.

The sites have been selected for four new warehouses and two new elevators, on the Fargo Southern road in Dakota, and two others are yet to be located. The points chosen are, Graceville, Abercrombie, Fairmont, Christine, Hickson and Wild Rice. The contract has been awarded to E. S. Tyler, who proposes to have the buildings completed in time to receive this season's crop.

A Denver, Col., dispatch of August 2 says: Accurate statistics of the crop of Colorado, now being threshed, show an increase of 5 per cent over any previous year, making the yield 2,100,000 bushels. Colorado will consume 1,500,000 bushels. The great American desert will ship 600,000. In view of this fact pooled lines have made a twenty-five cents rate on flour to the Missouri river.

The people of Kansas are as one man rejoicing in the estimate of \$150,000,000 as the value of year's crops. Harvesting is drawing to a close, thrashing progressing, and the corn area larger than ever and earing finely. Wheat is sold in the interior at 50 cents, and the disposition is to hold crops, but the trade centers are all busy and every prospect is favorable for a prosperous fall business.

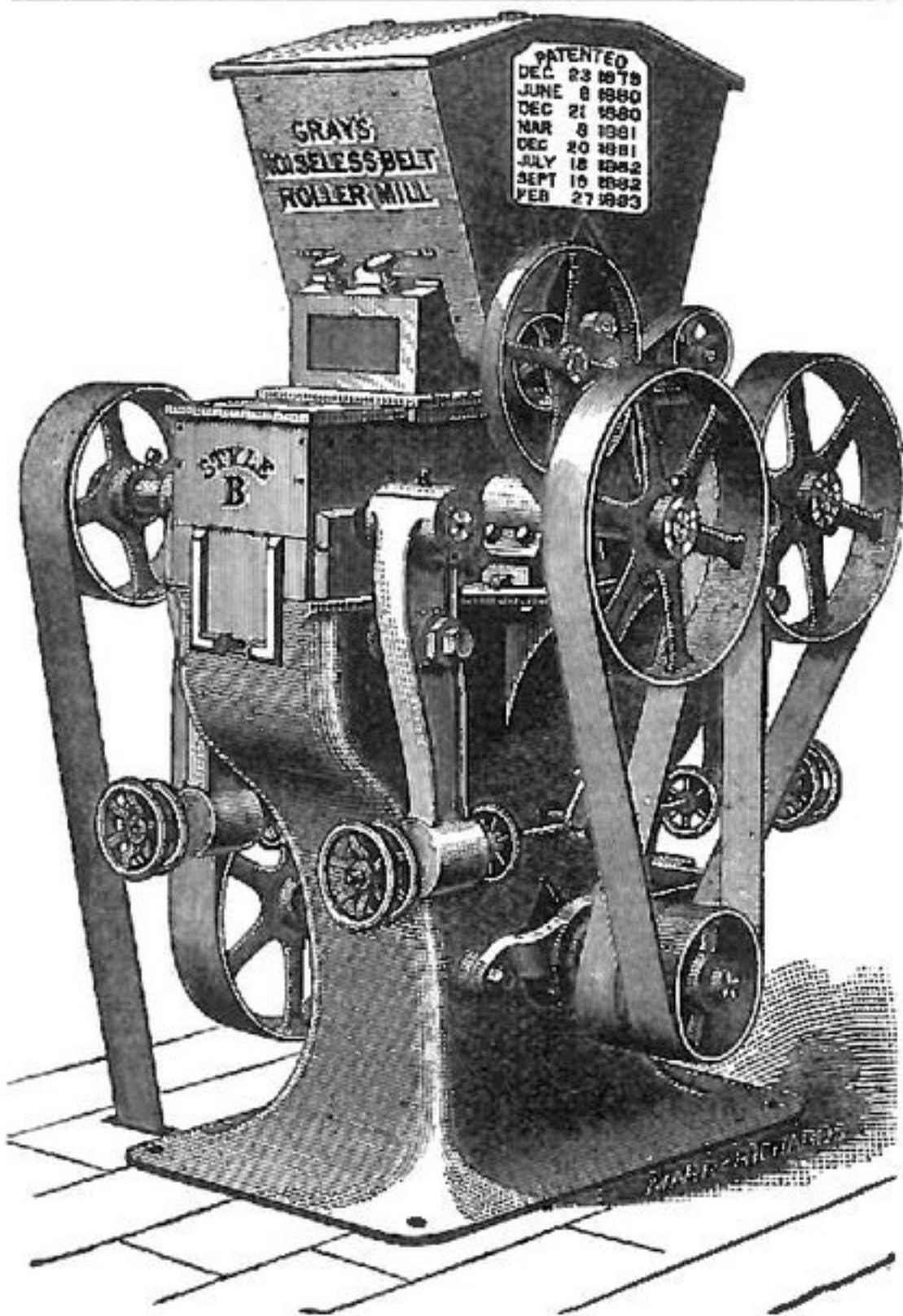
The flouring mill of Campbell Stevens & Co. at Chatham, Ont., burned in 1883, has been replaced by a structure five stories high, with a capacity of 350 bbls per day. The premises cost \$60,000 and are fitted up with the latest devices known to the trade for the manufacture of first-class flour. There are fourteen double sets of rollers, purifiers, centrifugal reels, scalpers, bran dusters, brush polishers, smutters and dust collectors.

At the forthcoming exposition at Louisville, Ky., there will be a fair display of modern mill machinery. Roller mills, purifiers, centrifugals, &c., in various sizes, from the factory of the Case Manufacturing Co., of Columbus Ohio. The display will be in charge of W. T. Pyne, the well-known mill builder and furnisher of Louisville, who is the agent and representative of the Case Company for the southwest. It will be well for all millers attending the exposition to call on Mr. Pyne, and make a study of this line of machinery as it is before the millers under a good name and will be intelligently explained by the man whom the Case Company has been so fortunate as to secure for their general agent.



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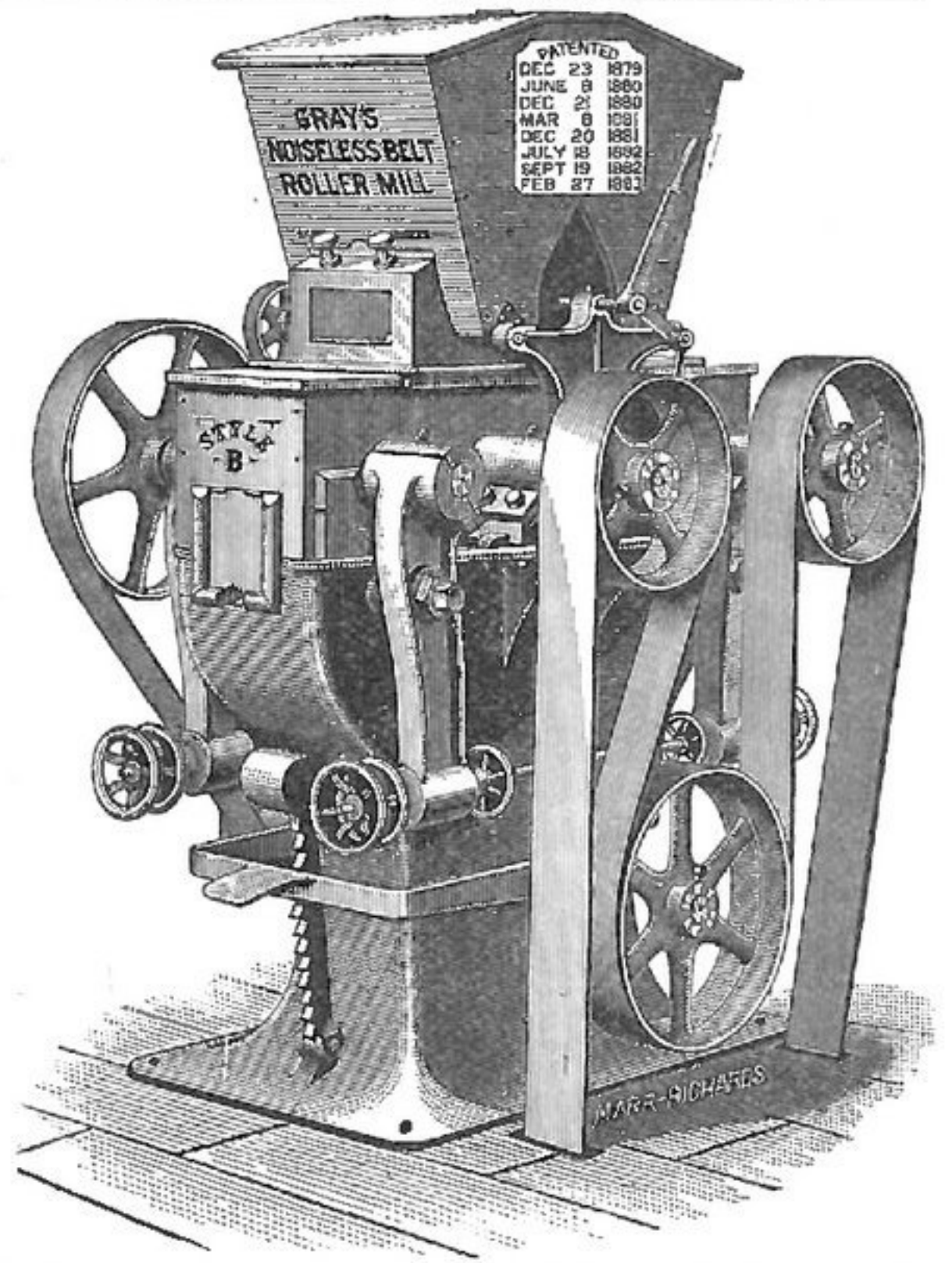
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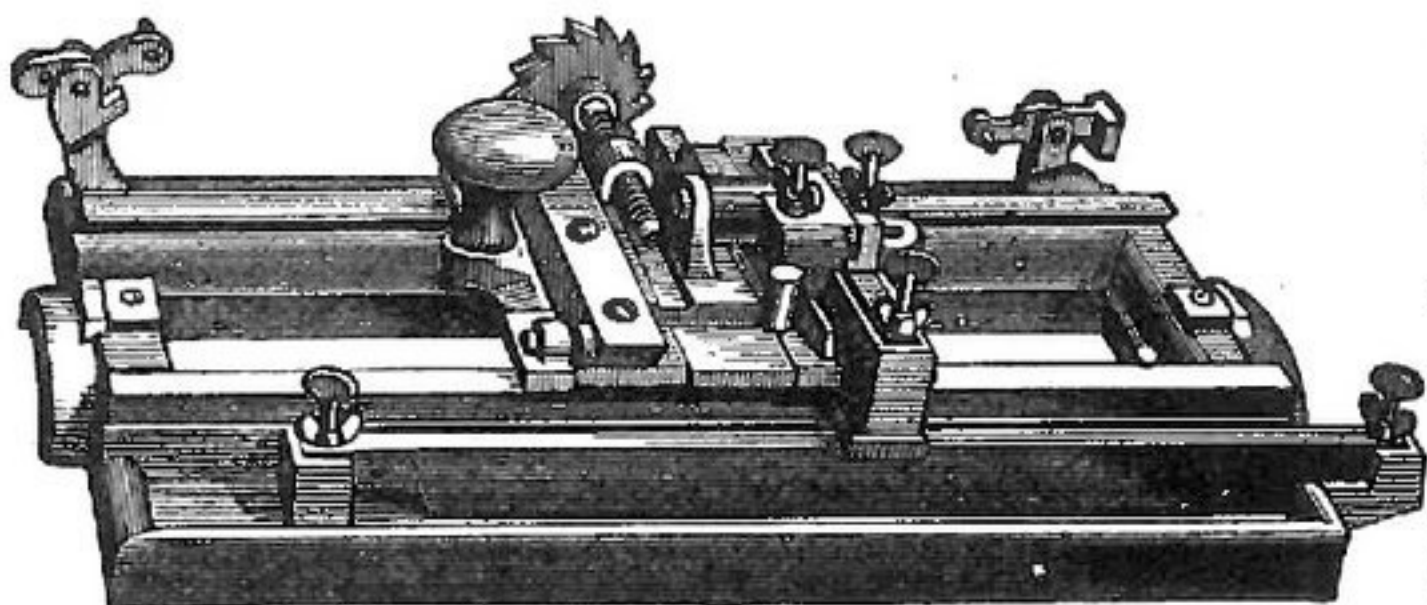
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No 1, to face and crack \$25.00  
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Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

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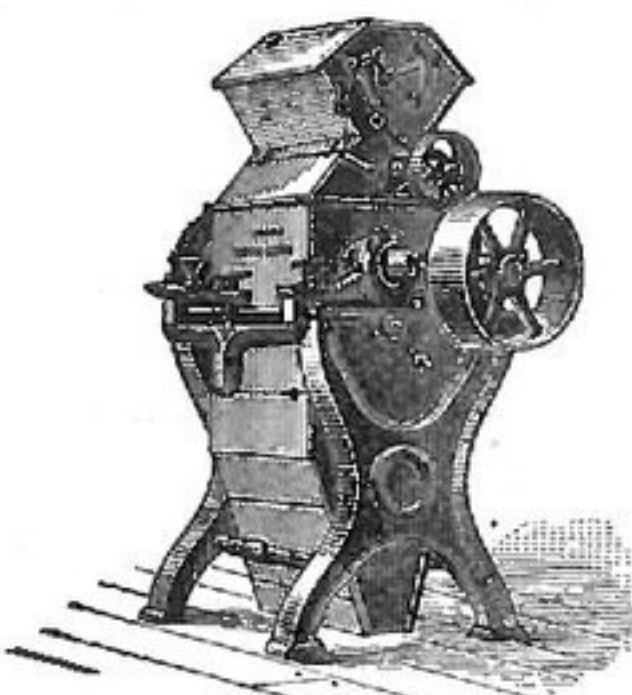
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SIZES OF ROLLS 9x18 and 7x14 INCHES.

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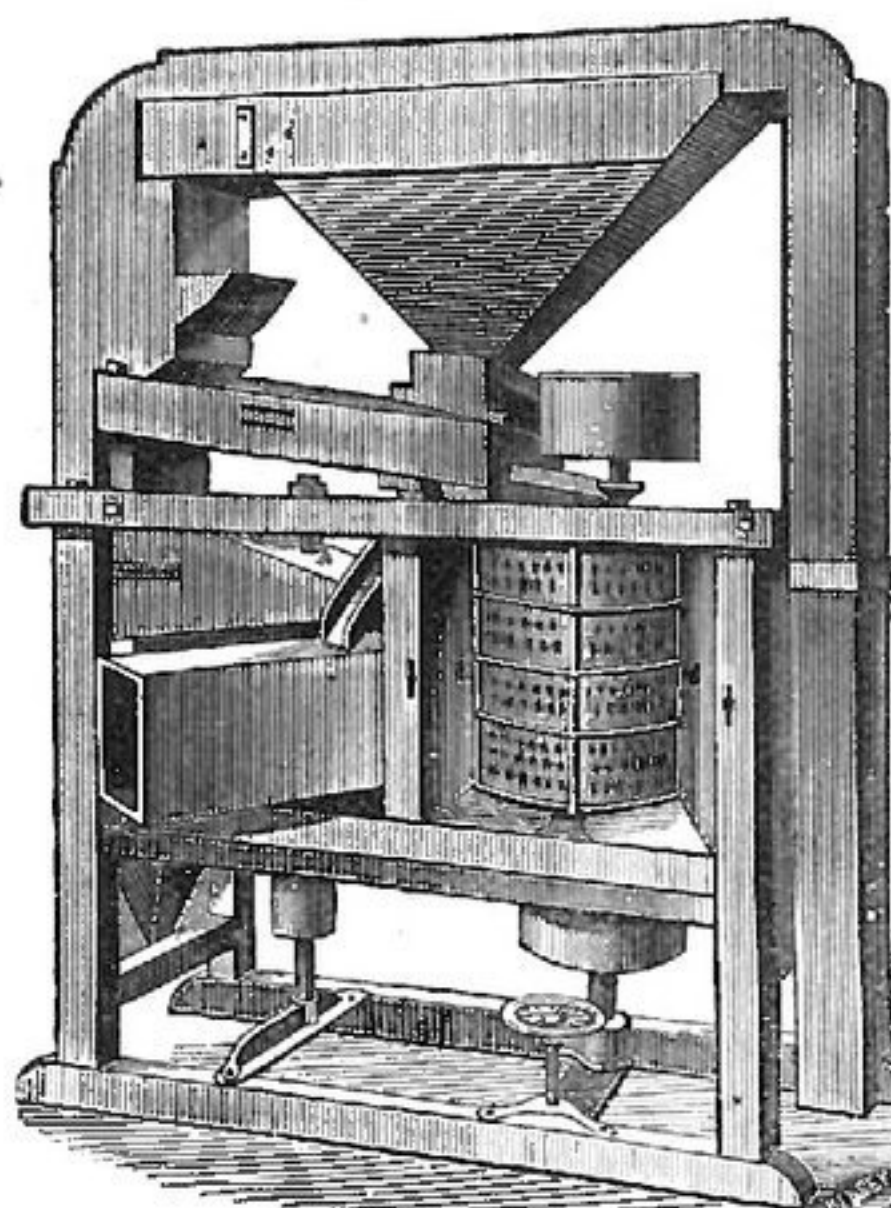
It will clean, rub and separate wheat, and take out the rat balls, black stick seeds, joints of straws, cockle and other impurities. It will also rub off more fuzzy ends and dust from the creases of the berries, by rubbing the wheat together as it passes up between the rubbers, so each berry must get rubbed, scoured, and polished alike. It will do all of this work better and last longer than any other machine of the kind. All this we guarantee. It will also clean barley and rye.


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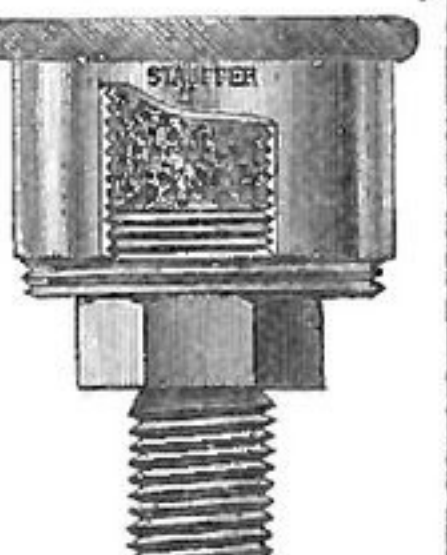


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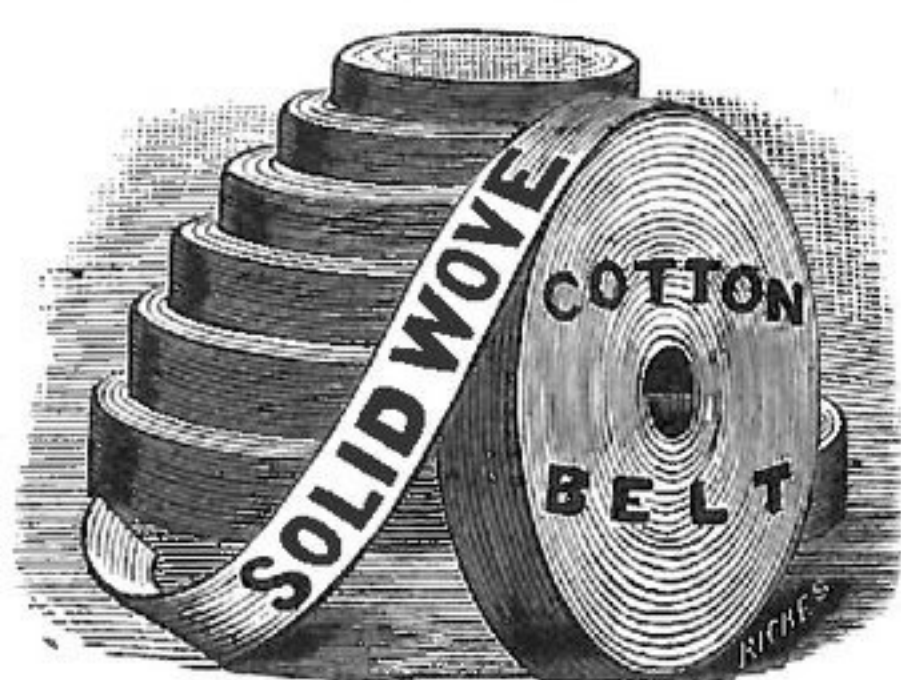
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Eight inches long, 2 1/2 inches wide, 1 1/2 inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880.

For facing down high places on the burr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$8.50. Satisfaction guaranteed, or money refunded. Address

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### WHEAT REQUIREMENTS OF EUROPE.

IN ordinary years, we are told, Europe provides about four-fifths the amount of wheat she consumes. Her average production is somewhat more than 1,100,000,000 bushels, and she would, therefore, import something like 275,000,000 bushels. Until very recently, however, it was believed that the European crop might this season be from 75,000,000 to 100,000,000 bushels larger than the average, which would, of course, considerably reduce the demand for the foreign article. However, late advices considerably modify this estimate, and the European output may not exceed the average. Consul-General Merritt estimates the average wheat crop of the United Kingdom at 80,000,000 bushels and the average importation at 110,000,000. The latter figure is probably too low. Good authorities have placed England's importation in recent years from 120,000,000 to 130,000,000. The State Department in a late report estimates that during the current year 375,000,000 bushels of wheat will be moved from the exporting into the importing countries of the world, and that of this amount the United States should be called upon for 188,000,000, and all other exporting countries for 187,000,000. It is needless to remark that large figures of this sort should be received with very great caution. It is of record that in the fiscal year 1882-3 our export amounted to 146,483,843 bushels; but of the future no man can say.

Breadstuffs are now cheaper in Europe than they have been at any time in a long term of years, and supplies on hand are larger than usual. In this country the unconsumed surplus of last year's crop is smaller than the average at this time. It is true that low prices abroad have some connection with the depressed state of industry and the consequent poverty of the working classes; but it is also true, conversely, that the ultimate effect of cheap food is to stimulate and revive trade, and reviving trade increases the demand for and raises the price of breadstuffs. While there is little reason to expect that the margin of profit is going to be very wide, the outlook justifies the expectation that there will soon be a marked tendency toward better prices.

### INEXPENSIVE FIRE-PROOF FLOORS.

Of the many economical forms of fire-proof floors may be mentioned one or two methods which appear to adapt themselves to buildings of small size where great weights are not carried. One of these is a wood and concrete floor and has recently been introduced into public buildings in England, says the *Building News*. The joists are cut tapering or A-shape, the pointed edge being put up, and are placed about eighteen inches apart; they thus form skew-backs to a series of flat concrete arches, which are filled in upon a rough movable centring underneath. The upper surface is levelled, leaving the points of the joists to which battens are fixed for the wood boards. Though the floor is not absolutely fire-proof throughout, the joists being imbedded on both sides and only exposed on the lower edge, it resists the fire for a long time.

Allen's system, which the late Mr. Allen introduced into several blocks of improved dwellings built by him, is also an exceedingly simple, economical, and efficient mode of flooring houses. The following is the plan pursued:—Bars, three inches by one inch, are placed across from wall to wall and built

into them, and across these are laid one-half-inch iron rods about the same distance apart, forming a net-work of meshes two feet square. A temporary scaffolding underneath the iron-work is then fixed, and concrete made of Portland cement and clinkers, slag, etc., one to four, is thrown into a depth of four inches, and when set the scaffold is removed, and a plaster ceiling can be formed. This system of imbedded iron rods in concrete has been found to insure great strength and rigidity; depth of flooring can be reduced, and the construction rendered quite fire-resisting.

The French use several forms of iron network flooring, in which rolled-iron I-shaped girders, placed about three feet apart, are crossed by flat iron bars or rods, and concrete or plaster filled in, submerging the iron rods, a temporary scaffold underneath being used. Very frequently coarse plaster-of-Paris is poured in to a thickness of about three inches. When hard this plaster stiffens the floor, and forms a good ceiling when finished by a fine coat. The girders are sometimes tied into the walls at the ends by iron straps secured to vertical bolts. Square wooden joists laid over the girders carry the floor boards. The system known as Thuasne's is formed in a similar manner, except that flat bars are first fixed across the girders about three feet apart; the ends passing through slits in wrought-iron bands which embrace the girder at these intervals; the ends are then pinned to secure them. Upon these, and crossing them, and parallel to the girders are placed lighter iron rods or "fentons" about one-half inch square, about nine inches apart, and bound to the flat bars by wire.

Another very strong floor exhibited at the Paris Exhibition is the *fer tubulaire* plan. It consists of a girder or inverted trough of section. These girders are placed about two feet eight inches apart from center to center, and are tied together at intervals by flat bar ties bolted to the bottom of the flanges. The flooring is either composed of flat hollow-brick arches placed between the girders which form skew-backs, and then joisted and floored with wood; or the spaces between the girders are filled in with hollow blocks of plaster four inches deep, and then floored in the same manner, or tiled upon plaster filling-in.

Inverted trough-shaped girders, fixed about two feet eight inches apart, and having a depth of about four and three-quarter inches, and a width at the top of two and three-quarter inches, increasing to three or four inches at the bottom, are suitable for bearings of from eighteen to twenty feet. Thick slabs of concrete might be used in lieu of the arches of hollow brick or blocks of plaster as a filling-in, and a very strong floor would be the result. In the iron net-work system the liquid concrete forms, with the iron, one solid slab, the bars acting to resist cross strain, and these may be so located in the mass as to afford the resistance to tension in the lower part of the concrete to take the compressive strain. It is singular that architects should still adopt floors for offices and other buildings of woden construction.

### TEST SCALES.

Under the name of Wutke's flour test scales, a small apparatus is at present sold in Germany to determine the baking qualities of flour, says *Die Muehle*. This it claims to do. Tempted by the low price, there are beyond doubt many who have bought the little instrument, and all must have been surprised to find, on unpacking, a small, not very elegant looking, balance, weighted at one end, and a small tin cup. The instruction reads: Place enough flour in the pan on the empty side of the scales to balance the weighted end; this takes about 20 g.; add to this flour as much water as the tin cup will hold and mix into a dough. Of

course we cannot determine the baking qualities of a flour by this one dough, but we can compare it with doughs made in a similar manner from other flours. The densest dough then holds the best flour.

There is nothing novel about this; we have known it for at least 20 years, and no miller has any need to purchase special scales for the purpose of weighing 20 g. flour and 10 g. water, because it can be done on any common balance. In addition he is utterly unable to determine the baking quality of flour in this manner, because he can only compare them. Pekar's water test gives us a similar comparison of flours, and is preferable, because it allows a preservation of the samples for future use, while this cannot be done in a test that is based solely on the density of the dough.

Up to to-day the most reliable method to determine the baking quality of a flour consists in obtaining the gluten by washing and baking it in an aleurometer. Even this method is imperfect, but the results are fairly reliable, because some of the errors can be avoided by care on part of the investigators. This is, so far, the only known method which permits of a comparison in numbers of the baking qualities of different flours.

### INDIA WHEAT AND ENGLISH BREAD.

A merchant just returned from India writes to a London contemporary expressing surprise at the prices English people are continuing to pay for their bread. India wheat, he says, has fallen within the last eighteen months some twenty per cent. in value, and thirty per cent. since the end of 1881. The question therefore arises, what proportionate fall has there been in the price of bread, or has there been any fall at all? Wheat has hardly ever been so cheap as it is now, and there is no prospect of any serious advance. Reports from England state that a bountiful harvest may be expected. America is almost assured of a good yield, while there is plenty of wheat in India. On the face of it—if we are to credit these reports, and there seems no reason why we should not—retail bakers have not even the excuse in keeping up the present prices of the probability of any advance in the price of flour. In India, we are told, "there is almost an unlimited supply procurable of the nutritious hard red wheats, which will be available for the use of the Londoners when they at last learn that color should be no object in bread."

### NOTES.

New Zealand has lately imported a number of roller plants in full as well as in parts from England.

Mr. J. H. Carter has been entrusted with further orders in the past week for complete roller plants for France, as also with a repeat order for New Zealand.

Mexico has several industrial schools established by the government for bringing up the youth of both sexes and all classes, without expense, to skill in employments which will make them useful in the community and add to the resources of their country.

It is said that there are 75 artesian wells in the great desert of Sahara, which have a combined flow of 1,000 gallons a minute, and two not inconsiderable villages have been built up, 150,000 palm trees set out and 1,000 gardens introduced in the midst of what was before an uninhabitable country.

A report of the French Consul at Warsaw states that the milling industry of Polish-Russia suffers severely under the present commercial depression. Two of the best known houses have recently failed and several large steam-mills have been shut down entirely, because no markets could be found for their products.

The Austrian Consul at Cairo reports that the city imports annually flour to the value of 12,000,000 fl. from Austria, 380,000 fl. from Russia and 200,000 fl. from other countries. The Austrian flour is sold at 20 per cent. higher prices than the Russian, owing principally to the quality and in

part to the differences in freights which appear to be in favor of the Russian product.

France has made no progress in population since 1860. Its number are smaller now than they were 15 years ago, while the load of taxation has almost doubled—in debt charges it has more than doubled, while imports have augmented and exports decreased. Such facts as these have caused great dissatisfaction among the people, and there are apprehensions of violent changes at no distant period.

Ten thousand eight hundred and thirty-two miles of railroad in British India are now open for traffic, and Mr. Juland Danvers states that the forthcoming annual report will show that the capital expenditure amounted to \$713,034,500, including lines under construction; that the average cost per mile came to \$56,500, and that the net receipts from all the lines were \$42,094,500 for the year.

The Mark Lane Express, of Aug. 2, in its review of the British grain trade for the week, says: A change in the weather brought brilliant summer days which have been literally tropical in heat. Harvest is in an incomparably better condition than it was a week ago. The work of harvesting is rapidly proceeding. In foreign trade nothing doing. Off coast trade getting weaker. No sales of English wheat during the week.

The agricultural statistics of Ireland continue to show a steady decrease in the number of separate holdings. In 1883 the number was 567,725, being 6,482 less than in the previous year. The number of larger holdings had, on the other hand, increased as follows: Those above 30 and not exceeding 50 acres, by 475; above 50 and not exceeding 100 acres, by 84; above 100 and not exceeding 200 acres, by 12, and above 200 and not exceeding 500 acres, by 84.

The New Zealand wheat crop in 1884 is placed at 6,183,178 bushels from 241,566 acres, being an average of 25½ bushels per acre. The supply available for export is placed at 4,000,000 bushels. The wheat growers of New Zealand are sellers at 23s to 30s per quarter, but shippers at these prices, with the present prices in the United Kingdom, do not see their way clear for a profitable venture. An advance in the United Kingdom in the price of wheat, it is said, will start the New Zealand surplus for Europe.

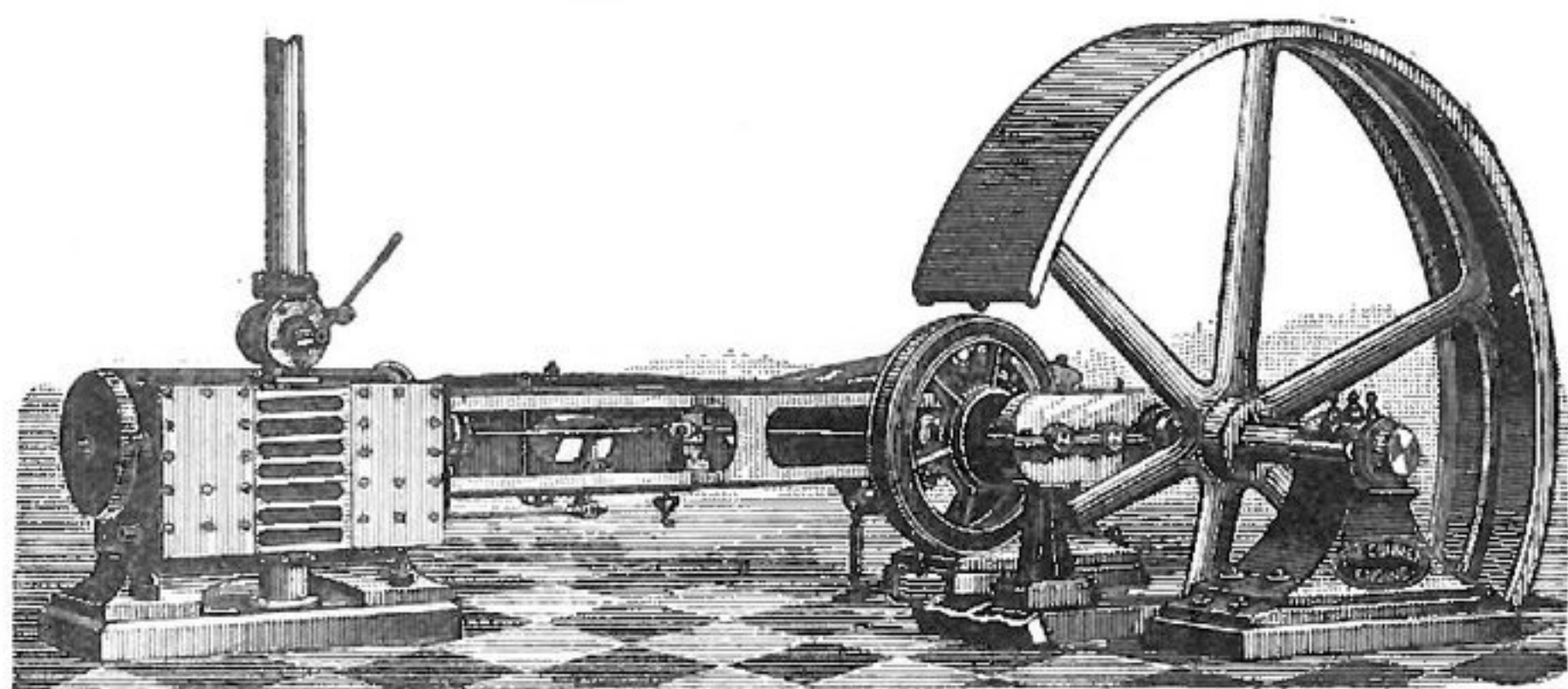
Mr. H. Simon, of Manchester, reports having received an important repeat order for a complete roller mill plant, capable of producing 1,500 sacks of flour per week, from Mr. J. White, Scotstown Mills, Patric, Glasgow, who has had one of his roller mill plants working successfully for over two years. This is the second repeat order received by Mr. Simon from Glasgow, this month. Mr. H. Simon has also received two other orders for complete roller mill plants this week; one from Mr. J. Rank, of Hull, the other from Mr. J. Waddell, of Airdrie.

There is no check to the rate at which gradual reduction milling is progressing in Great Britain; millers who have put off the inevitable change from month to month at last find a roller mill put in right alongside of them; and then they begin to feel the effects of real competition, compared to which foreign competition is puny. Then their customers begin to find that better flour is to be obtained from the neighboring new process mill; and so the work of change goes on. All this is good for the milling engineer and mill furnishers but the miller has generally an anxious time of it.

A letter from Germany notes that nearly 6,000,000 acres of land in that part of the world have recently been diverted from the cereals to the culture of beet root. The refuse, after the extraction of sugar, forms a fine feed for live stock, and tends to make the people there less dependent upon us for meat than they used to be, but the contrary is the case with regard to cereal food. The diversion above noted explains the recently reported pressure of beet root sugar from Europe on American markets. The article is offered at such low prices as to make it scarcely profitable to manufacture glucose from corn in this country now.

The Hungarian flour export trade has, after all, this year shown only a small falling off from last year; in fact, the total exports from Fiume in the six months ended June 30 amounted to 445,220 quintals of 270 lb, or only 2,175qntls less than in the corresponding period last year; whilst from Trieste the exports during these six months were 442,049qntls, or 46,882qntls less than last year. The total deficiency from these two ports is therefore about 49,000qntls, or 38,500 sacks of 280lbs. The Hungarian wheat crop this year is, according to reliable reports, more than 8 per cent below an average, so that no excessive pressure of flour supplies on the score of an abundant crop is to be expected next season.





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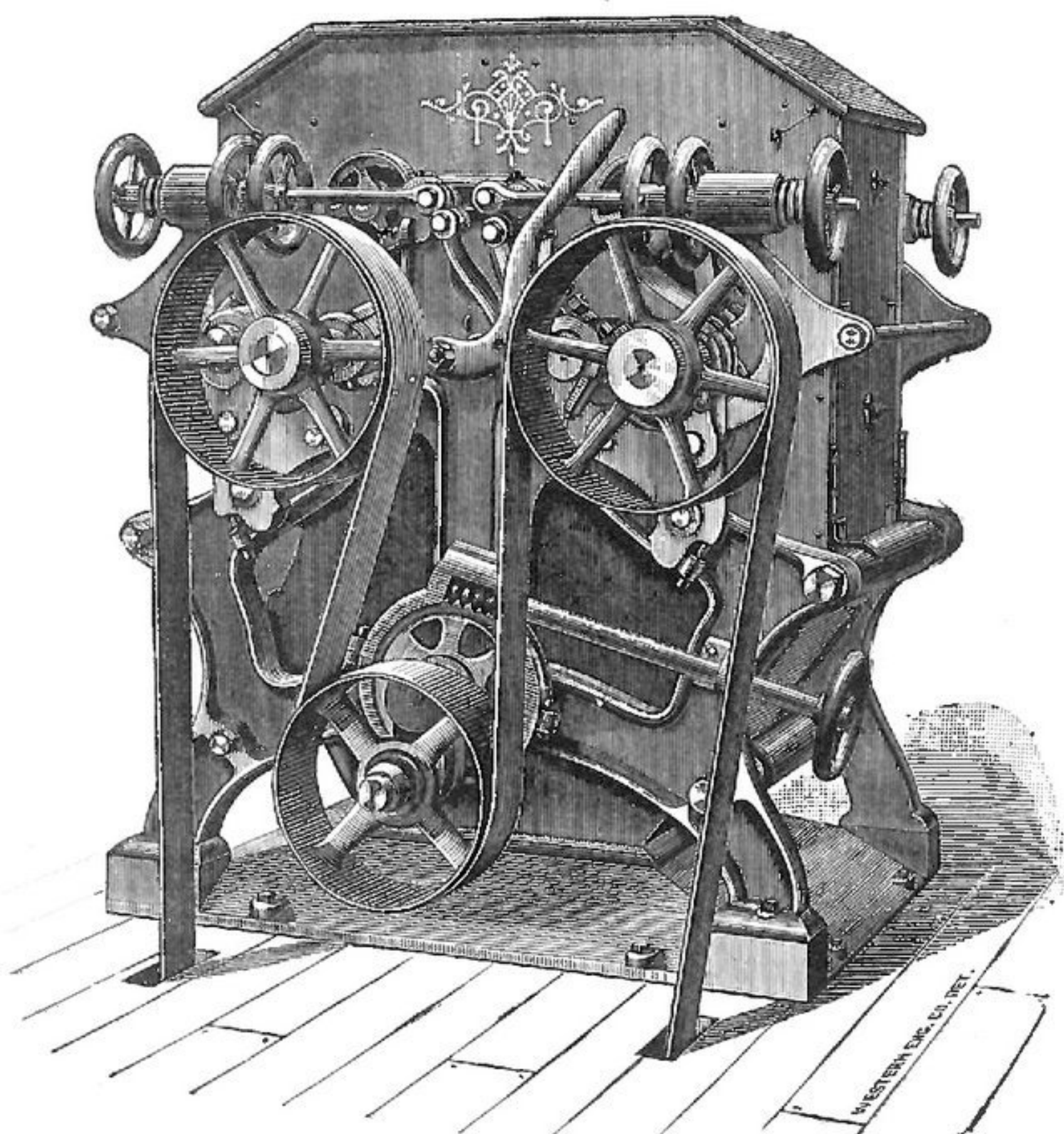
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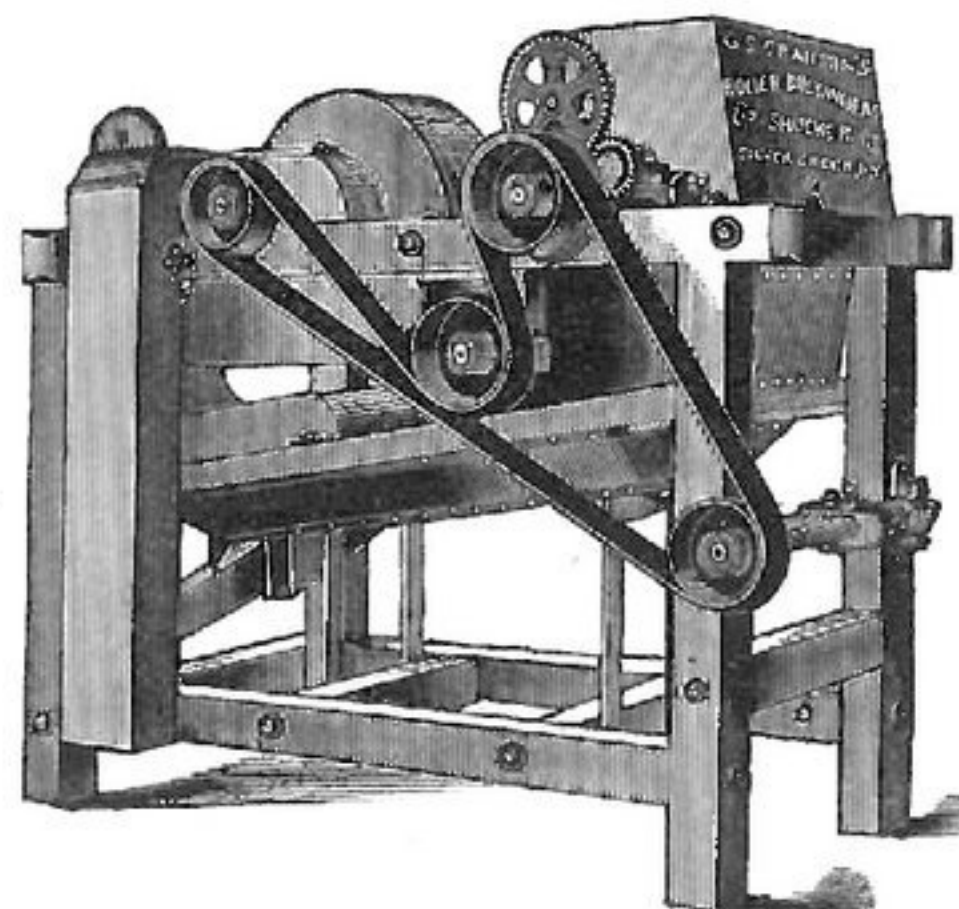
## The MILLER ROLLER MILL



Has no superior. Universal Tightener, Automatic Feed, Tight Base, Noiseless, with Non-Cutting Corrugations. We also manufacture the Rider Wheat Break, which has no equal for 1st, 2d and 3d Breaks. Send for Reference and Circulars of our Machines.

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WILL FIND IT TO THEIR DECIDED ADVANTAGE TO INVESTIGATE THE CONCEDED MERITS OF

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ROLLER BUCKWHEAT SHUCKER

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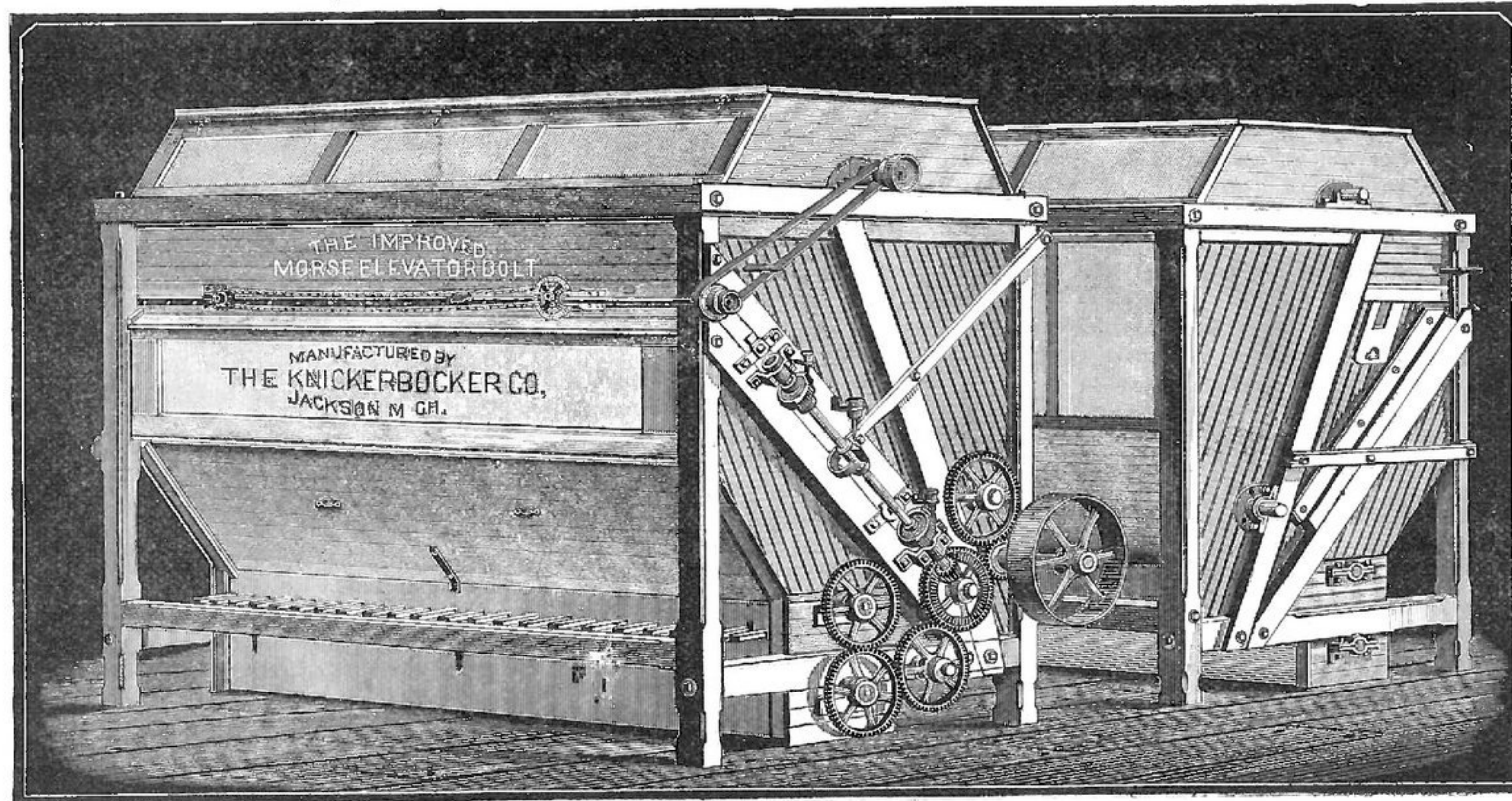
Our Celebrated Patent Head Linings are straight Rounded on their upper edge nail on barrel. They will freely through the square are packed. We can furnish from twelve to seventy-two GOOD Head Lining can



Round Edge Bent Barrel grained from end to end, and crimped or bent ready to not mold, as the air circulates bundles of 250 in which they them any desired length, inches, and as cheap as any be sold.

CAN FILL ALL ORDERS AT SIGHT.  
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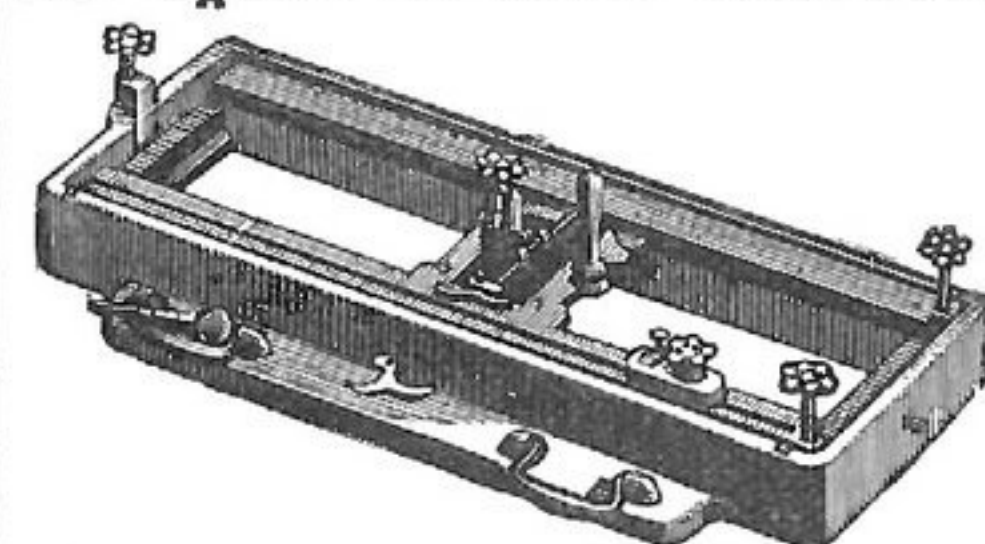


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THE KNICKERBOCKER CO., JACKSON, MICH.

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A NEW INVENTION.  
NO EQUAL IN MANY RESPECTS.



Adapted to all kinds of dressing on right or left hand burrs; convenient to place machine over spindles, are ample long and wide. All adjustments and regulations are quick and easily made without the use of any tool. By the use of this rod feed deeper facings can be done by once going over the face, as the feed can be set to over 1,000 cuts per inch, and is instantly regulated as desired, to suit the depth of cut, in other words to cut fine or coarse when in motion, making it complete, and a great saving of time in this respect, as well as others. Forease of operation and adjustment it is far superior, also for merit and simplicity. All is fully guaranteed to be as represented. Machines have now been in use for four years, and not a single call has been made for any repairs. Also a new Improved Patent Diamond Holder, which is specially adapted to hold any shaped diamond; convenient to set a diamond. Facing can be done to good advantage with two diamonds at one time. The carriage can be taken out at end of machine and replaced in a half moment's time, all is complete. A revolution in several respects. Machines will be forwarded on their own merit, by parties giving good references. Send for circulars giving full description.

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HAS BEEN AWARDED  
**FIRST AND ONLY PREMIUM**  
 AT THE  
 Millers' International Exhibition.



Office of THE MILLING WORLD.  
 Buffalo, N. Y., August 13, 1884.

So little is there to say about the markets that a total absence of remark would probably serve the purpose as well as an elaborate review. What was said last week would serve for this, and, from present indications, this week's remarks will serve for next. New wheat is being very freely marketed and prices tend steadily downward as receipts increase. This is but natural in the absence of export demand and the lightness of milling request. According to the New York *Commercial Bulletin* of yesterday. There has been an increase of 249,310 bush in the amount of wheat in store in New York, and it is now 1,723,669 bush, against 1,474,359 bush last week. The stock of No. 2 wheat is now 981,497 bush—an increase of 170,017 bush as compared with last week. "Heavy," "buyers holding off," "weather in the United Kingdom hot and forcing." Such is the language of the public cables received to-day. The private advices are even worse. Says one dispatch (regarded as semi-official being so generally accurate and influential), "Every indication of a continuance of fine weather; wheat market panicky; any reasonable offer accepted." Nothing public or private later than this is at hand from Europe. The early conduct of our markets in view of news from abroad has been somewhat remarkable in that after starting in at a slight decline prices worked their way up a little on light transactions. The explanation of the advance is not easily found. It started in the West, and may have been based on some "missionary" work, whereby the total of the clearances of last week (599,393 bushels) were round numbered six hundred thousand, and telegraphed to the West in an adroit phrase that made them appear to be to-day's figures alone. The failure of the Wall street Bank had a bearish effect at the opening which was seen in the early decline and influenced the West more than here. The failure is regarded as having no particular significance at this time. There was some good buying orders, directed mainly to September and October. Some wheat was bought for foreign account, presumably for covering shorts, telegrams from the West indicated also good buying at Chicago. The shorts covered pretty lively on this and helped send the market up  $\frac{1}{2}$  c. here and 1c. at the West. There appeared to be no good reason on which to advance the market, unless as a prominent operator puts it, "the market has been sold altogether too low, and is entitled to a substantial advance just because prices are too low." As to this, however, opinions are much at variance, and one man's idea seems to be as good as another's just now. The wheat receivers report larger and more numerous bills of lading, and popular expectation is fixed for a large interior movement. Noon found the market for wheat very dull, with prices back to Saturday's closing figures. During the afternoon trading was uninteresting in form, and generally the market acted bearishly, and closed at the lowest point. A noticeable feature of the wheat market is the weak relation that August holds to the general list selling, at 89 $\frac{3}{4}$  c., while 91 $\frac{3}{4}$  c. was the price of September—a heavy carrying charge for an interval of 20 days. The receipts of flour are small. It is fair to add that the demand for flour is small. It naturally follows that the market is weak. The speculative changes in wheat are unnoticed; they are slight anyway and the flour receivers have settled down to the conviction that the proper thing to do is to meet the buyers at any reasonable offer. This leads to some irregularity in price making, and also to some concessions here and there, while the general market cannot be called lower. Rye flour is quiet and steady at unchanged prices. The market for corn goods is generally without change; stock moderate; demand moderate. Bag meal is quiet and weak. Mill feed is dull and heavy.

#### BUFFALO WHEAT MARKET.

Buffalo, Aug. 12, 1884.

The wheat market during the past week has been very weak and a decline of 2c to 3c in prices on all grades has been accepted, though our home and Rochester millers are taking their usual supplies. We note that 86,039 bushels of Duluth

## DUFOR & CO.'S CELEBRATED BOLTING CLOTH.

**FIRST AND ONLY PREMIUM  
 OVER ALL COMPETITORS!  
 PURCHASE ONLY  
 FROM RELIABLE DEALERS.**

wheat was taken from store during the week for home and Rochester trade, which is a large shipment for this wheat on a declining market. No. 1 hard offered this morning at 98c; No. 1 regular 92c; No. 2 hard 93c. New winter wheat arriving freely and going forward by Canal in good condition. The car lots that are arriving for sale here are improving in quality and condition. No. 2 red 93c. Long berry as per sample 93@95c. Old white wheat held at \$1.02. Corn in good demand for small lots, for home and interior trade. No. 2 sold at 56c; No. 3, 54 $\frac{1}{2}$  c. Sample lots 52 @54c. Oats stock here very light, demand fair for car lots on track. No. 2 mixed Western 37c; No. 2 white 58c. Other grain nominal.

JAMES S. MCGOWAN & SON.

#### FOREIGN EXCHANGE.

There being no steamer until Wednesday, transactions were very limited and the market weak. Commercial bills continue in light supply. The posted rates closed at 4.83 for sixty days' and 4.85 for demand. The actual rates ranged: At sixty days' sight, 4.82@4.85; demand, 4.84 $\frac{1}{4}$ @4.84 $\frac{1}{2}$ ; cables, 4.84 $\frac{3}{4}$ @4.85, and commercial, 4.83 $\frac{1}{2}$ @4.87. Continental exchange quiet and fairly steady; francs, 5.21 $\frac{1}{4}$ @5.20 $\frac{1}{2}$  and 5.18 $\frac{1}{4}$ @5.18 $\frac{1}{2}$ ; reichsmarks, 94 $\frac{1}{4}$ @94 $\frac{1}{2}$  and 94 $\frac{1}{2}$ @95; guilders, 39 $\frac{1}{2}$  and 40 $\frac{1}{2}$ . The closing posted rates were:

	60 days.	30 days.
London.....	4 88	4 85
Paris francs.....	5 20	5 17 $\frac{1}{2}$
Geneva.....	5 19 $\frac{1}{2}$	5 16 $\frac{1}{2}$
Berlin, reichsmarks.....	94 $\frac{1}{4}$	95 $\frac{1}{2}$
Amsterdam, guilders.....	40 $\frac{1}{2}$	40 $\frac{1}{2}$

#### BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring \$5.00@5.50; straight Duluth spring, \$5.50@5.75; amber, \$5.50@5.75; white winter, \$5.25@5.50; new process, \$6.50@6.75; Graham flour, \$5.00@5.25. Western straight Minnesota bakers, \$5.50@5.75; clear do, \$5.00@5.50; white winter, \$5.50@5.75; new process, \$6.50@7.00; low grade flour, \$2.50@4.00. CORNMEAL—Market steady, with a fair demand. Coarse, \$1.15; fine, \$1.25 per cwt. RYE FLOUR—In fair demand at \$3.75@4.25. BUCK-WHEAT FLOUR—Demand fair at \$3.50 per cwt. WHEAT—Weak. No. 1 hard Northern Pacific at 98c cash; at the Call Board 97c was asked August, 98c asked 95c bid Sept., 99c asked October and 98c year. No. 1 regular offered at 98c. Winter wheat dull. Sale one car-load longberry red at 96c. CORN—Dull. Sales 3,000 No. 2 at 56c, at the Call Board 56c asked to arrive and August and September. OATS—No. 2 white at 40c; No. 2 mixed held at 38c. BARLEY—Season over; market nominal. RYE—Last sale of No. 2 Western was made at 72c.

#### ABOUT WHEAT VALUES.

In the matter of price, says the *New York Produce Exchange Reporter*, the inferior quality of the 1883 wheat crops in the United States and Europe, and their assured superiority this season, is worth considering. Quantity and all other price influences except quality equal, the 1884 should sell for a considerably higher price than was got for that of 1883. The intrinsic average value per bushel of 60 pounds of this year's wheat is probably 5 to 10 per cent. greater than that of last year. Why not? It takes anywhere from 20 to 25 pounds less of it to make a barrel of patent flour, and a great deal better flour, too, than could be made of the 1883 wheat.

With a visible supply one year ago of 18,500,000 bushels, No. 2 red winter wheat was worth in this market 122 cents per 60 pounds. Now, with a visible supply of only 14,500,000 bushels, our new crop, which is worth intrinsically from 5 to 10 per cent. more money than the old, brings only 96 cents per 60 pounds—a numerical decline of 30 cents, but an actual decline of 34 $\frac{1}{2}$  to 39 $\frac{1}{4}$  cents per 60 pounds. Has the altered prospective relation of supply to demand changed to such an extent from that existing one year ago as to justify this heavy decline? We think not. When the old stocks are counted, the total supply for 1884-1885 does not promise to be very much larger than that of 1883-1884, if, indeed, it proves any larger. Of old wheat the United States holds from 40,000,000 to 50,000,000 bushels less than one year ago, and so does nearly every country in Europe also hold less. France, England, the Low Countries, Germany, Austria, Hungary, Italy, etc., all have smaller stocks. The European harvest, as a whole, is not more than an average in quantity, but is, probably, rather above an average in quality. Apart from the United States, the exporting countries do not promise, at current low rates, as large a surplus in the aggregate as they furnished last year. We venture the assertion that the joint exports of Russia, Turkey, Persia, India, Egypt, Algeria, Australasia and Chili for 1884 to 1885, will not show as large a quantity as their exports for 1883 and 1884. Nor are those from the United States likely to show as great an increase, we think, as appears to be generally anticipated.

Even if our crop this year is 100,000,000 to 125,000,000 bushels larger than last, we have some 50,000,000 less of old grain; and because the farmer was a ready seller of poor wheat at good prices a year ago, is no reason for supposing that he will this season sell exceptionally good wheat at poor prices.

It may, and doubtless will take some time for market opinion to reach the dominating conviction that the price of our splendid crop has been sunk unjustifiably low; but we are satisfied that time will bring this conviction, and with it higher prices for our grain. Meanwhile it may be no more than prudent for the "bears" not to oversell the American markets too largely for delivery in the autumn months, or for shipment to London and other foreign markets. There is such a thing as "manipulating prices too low as well as too high.

#### BOYD BROS.' FLOURING MILL.

Under date of Aug. 6, the *Fullonian* of Fulton, Kentucky, contains the following description of the recently remodeled mill of Boyd Bros., located at that city. Referring to the fact that it was shut down for repairs about May 25th last, it says: The mill since then has undergone a thorough course of overhauling. The work was placed in the hands of the large and extensively known firm, The Simpson & Gault Mfg. Co., Cincinnati, Ohio. The main building is 36x40, basement and three stories. Engine room on the west side. On the east side is an elevator with a capacity of about 50,000 bushels of wheat. In the basement of the mill we find a main shaft with beveled gear, for driving main upright shaft, which extends clear through the building to the attic. The main shaft that drives the upright shaft also drives the counter, on which are pulleys to drive the rollers. On this floor is also placed 32 elevators, conveying wheat to all parts of the building, break flour from rollers to bolts, corn to its destination, flour, middling and bran to their respective bins. On this floor, also, is a Simpson & Gault Champion corn cleaner.

Situated on the first floor are six pairs of Allis roller mills. We find in one part of the building on this floor Simpson & Gaults 42 inch top-runner buhr. The mill is provided with three of Simpson & Gault's improved economic flour packers. These packers are perfect in their performance and can be adjusted so as to pack from a 25 pound sack to a 196 pound barrel, never deviating from the exact weight.

On the second floor is situated one 6-reel scalping chest, one 4-reel chest and two 2-reel chest for flour; also, one 1-reel grading chest and reel for corn meal. One of the greatest parts of the machinery on this floor is four of Geo. T. Smith's improved middling purifiers and two separators; two bran dusters and three large flour bins are on this floor, which furnish flour for the packers.

On the third floor are 32 stands of elevator heads. Also six conveyors or coolers for conveying the flour from elevators to the bolting reels. All reels are furnished with two conveyors underneath. There are also two mammoth improved dust collectors; two Martin Centrifugal flour dressing machines—one No. 1 and one No. 3—which perform their duties in an admirable and satisfactory manner.

In a separate room, between the main building and elevator, are one No. 2 Barnard & Leas duster and wheat separator; one Simpson & Gault champion smutter, and one separate brush machine. Situated in the elevator building is one of Simpson & Gault's champion receiving separators. The wheat first passes through the champion receiving separator, then through the separator, then through the smutter to the brush. The wheat before going into the main building, is entirely cleansed, and no dust is by any means carried into the mill.

The entire machinery is driven by one powerful engine, which drives the main shaft in the basement, to which is attached beveled gear to drive upright shaft, and to this upright shaft are attached other bevels for driving shafts with belts and endless chains on the different floors. The capacity of the mill when running steadily is from 100 to 125 barrels of flour per day—24 hours—which finds ready sale all through the South and West, and is a great favorite with all surrounding counties.

The most important part of the work and completion of this mill is that of supervising and placing in the machinery. Mr. J. G. Shea, of Columbus, Ind., has been superintending the work, and men who know pronounce the mill-

wright work the finest they ever have seen. Mr. Shea is a millwright of large experience, devoting his time and attention strictly to his business.

#### NOTES.

It is reported at Chicago that the rates of cargo insurance will be advanced September 1st.

The call system in trades, now out of use in Chicago, is not likely to be revived. The pits serve the interests of all but scalpers better than the call board.

John Lautzy, St. Boniface, Pa., has ordered from S. Morgan Smith, York Pa., an improved Success water wheel, and all the shafting and gearing necessary for driving a first-class circular saw mill.

Last summer European speculators had bought up the wheat crop in India, and were unable to ship it on account of the cholera quarantine established at the entrance to the Suez Canal. Certainly the prospects this season are more dubious than those of last year. If American remains a noncholera country, her breadstuffs will be especially marketable for that reason.

The Case Mfg. Co., Columbus, Ohio, have been awarded the contract of C. L. Thompson, Thompsonville, Kan., for a complete outfit of breaks, rolls, purifiers, scalpers, centrifugal reels, bolting chests, etc., for a full gradual reduction mill on the Case system. The mill, when completed, will have a daily capacity of 100 to 125 barrels. H. E. Gates, of Kansas City, obtained the order.

The present low prices for wheat may delay the movement of much of the crop until late in the season. In several districts where heretofore the crop has been threshed from the shock direct the farmers are reported stacking it, evidently in no hurry to get the grain ready for the market. Manufacturers of and dealers in threshing machines, who some weeks ago were crowded with orders, are doing a declining business as the season nears its close, but, owing, as we have stated, to the stacking of much of the crop, except a dribbling of orders till a later time than usual.

A pamphlet is in course of preparation at the Statistical Bureau of the State Department, and will be ready for issue about two months hence, which will contain information of great interest and value to American manufacturers of agricultural machinery. A large number of requests for information, which the Department received from this class of manufacturers, led Assistant Secretary of State Davis to prepare a circular to Consular officers of the United States instructing them to obtain and forward such information as would enable American manufacturers of agricultural implements and machinery, steam, horse and hand-power, to enter into competition with the manufacturers of other nations for that share in the world's trade to which the superiority of their manufactures entitle them.

James Bayne, Statistical Agent of Dakota, has prepared a report on the crops and sent it to Washington. He has furnished S. W. Talmadge, of Milwaukee, Wis., with a synopsis, in which he says: The wheat harvest in South Dakota is well under way, and while farmers are straining the capacity of self-binders they are as yet unable to complete the work before the fast ripe grain wastes by shattering. It will all be in shock in a few days. Stacking has already commenced. The yield will evidently be better, but not so great proportionately per acre, but only threshing will determine the exact status of the yield. In South Dakota the harvest is just commencing in some localities, while in others it will not be begun for a week. Some fields will make thirty-five bushels to the acre, but the most only fifteen to eighteen. The only great danger is the ruthless pelting of hailstones. Grant county reports the prevalence of smut in soft wheat. Hand county reports some blighted wheat. The acreage is placed at 1,600,000 acres. The promise is of about sixteen bushels to the acre, which is equivalent to 25,600,000 bushels, of better quality of grain than last year.

#### JAMES S. MCGOWAN & SON, SHIPPING AND COMMISSION MERCHANTS.

Choice Milling Wheats a Specialty  
 Room 60 Board of Trade Building.  
 BUFFALO, N. Y.

No Charge for Inspection.



# NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Builders from the Raw Material of

## ROLLER MILLS, CENTRIFUGAL REELS, FLOUR BOLTS.

WE ARE THE SOLE OWNERS FOR THE UNITED STATES OF ALL THE PATENTS UPON THIS ROLLER MILL.

*This Is the Only Roller Mill Made Having All the Essentials Needed In Successful Milling.*

### 500 BARREL MILL IN MISSOURI.

*Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:*

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

*Gentlemen:* In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 83 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

OFFICE OF DAVIS & FAUCETT MILLING CO.,  
ST. JOSEPH, MO., Nov. 28th, 1883.

Yours, etc.,

R. H. FAUCETT, PRES.

### 500 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

*Gents:* We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

OFFICE OF DAVID SUPPGER & CO.,  
HIGHLAND, ILL., Jan. 10, 1884.

Yours respectfully,

DAVID SUPPGER & CO.

### 125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

*Gentlemen:* The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

LAFEL, MADISON COUNTY, IND., Jan. 10, 1884.

Yours truly,

J. T. FORD.

*Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.*

## SPECIAL MILLING DEPARTMENT!

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N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

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Manufacturers and Dressers of  
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168 KINZIE ST., CHICAGO.

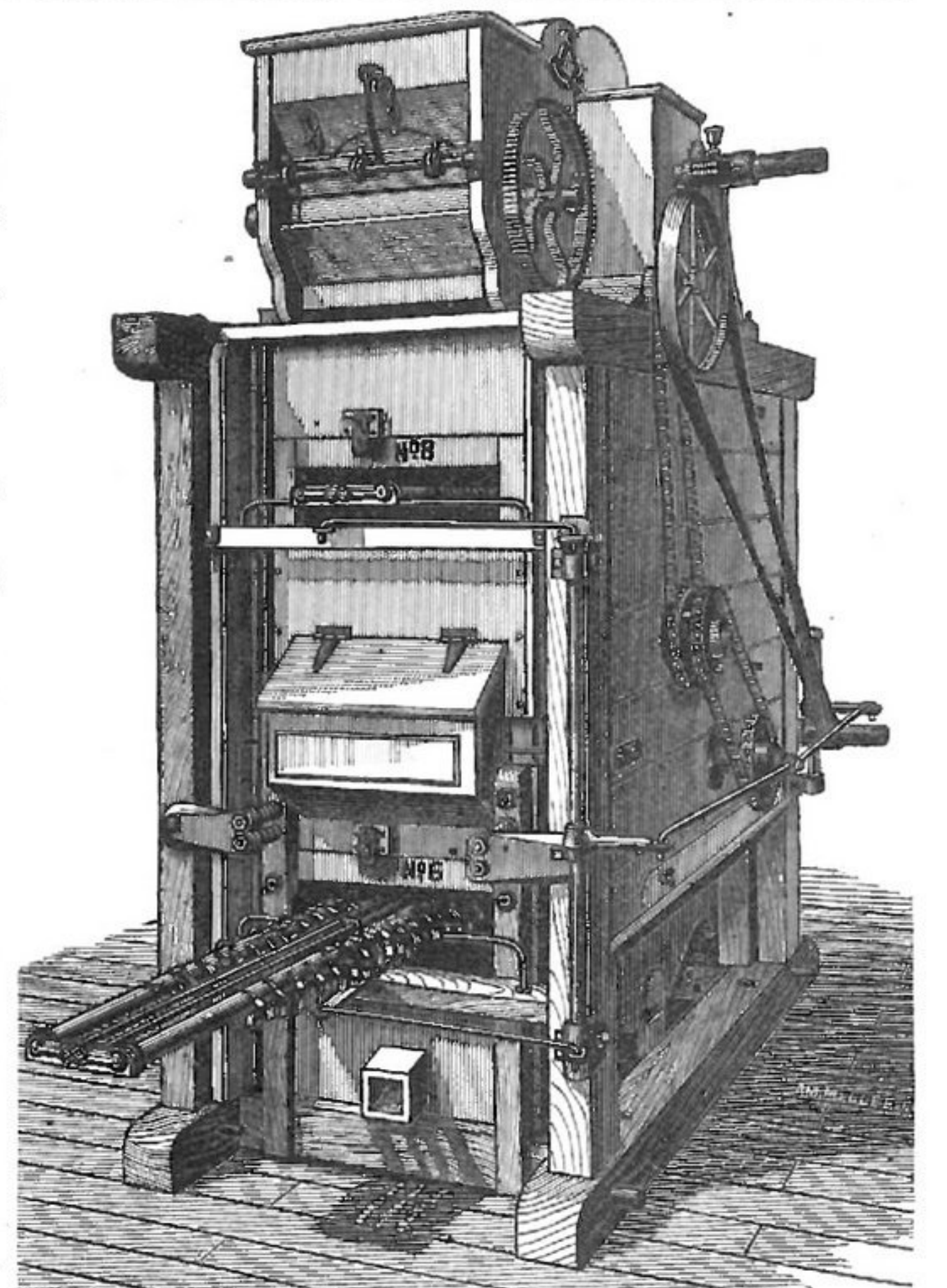
Picks will be sent on 30 or 60 days' trial to any responsible Miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the United States and Canada.

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**J. T. Walter, Sole Manufacturer, Easton, Pa.**



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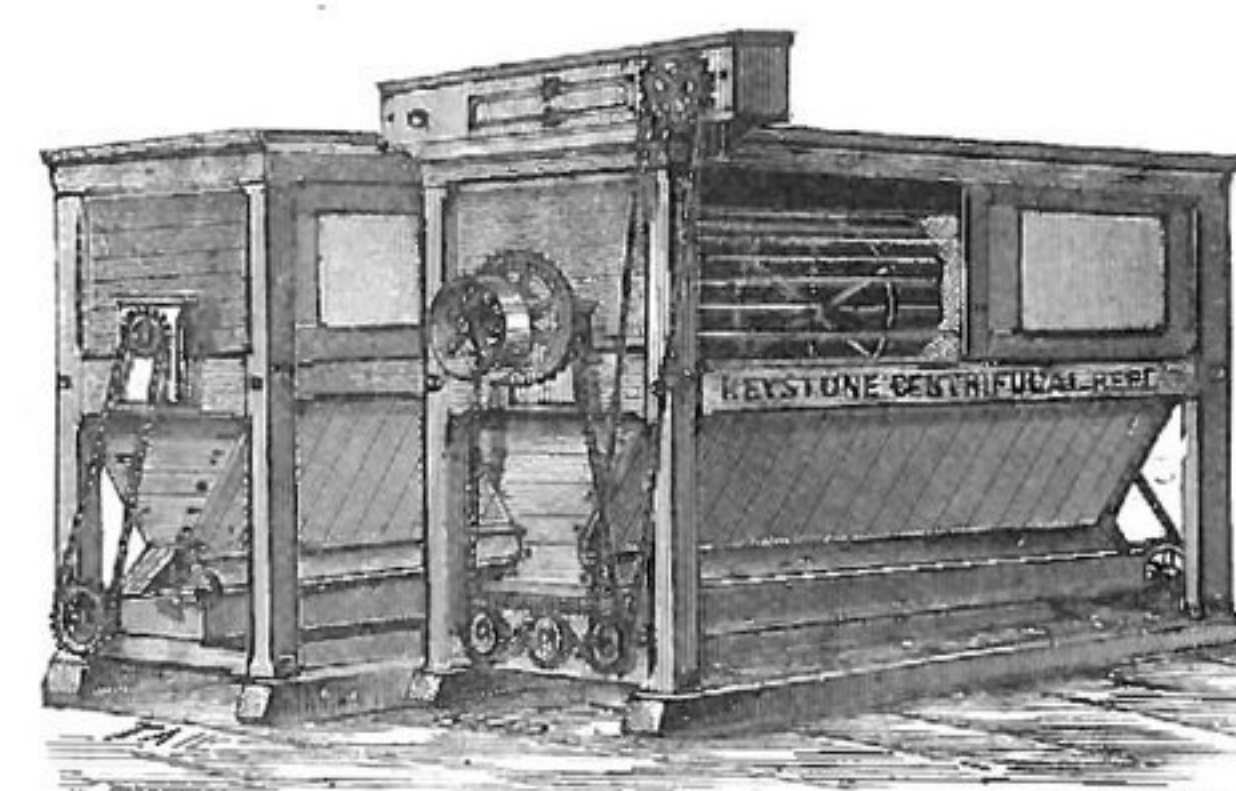
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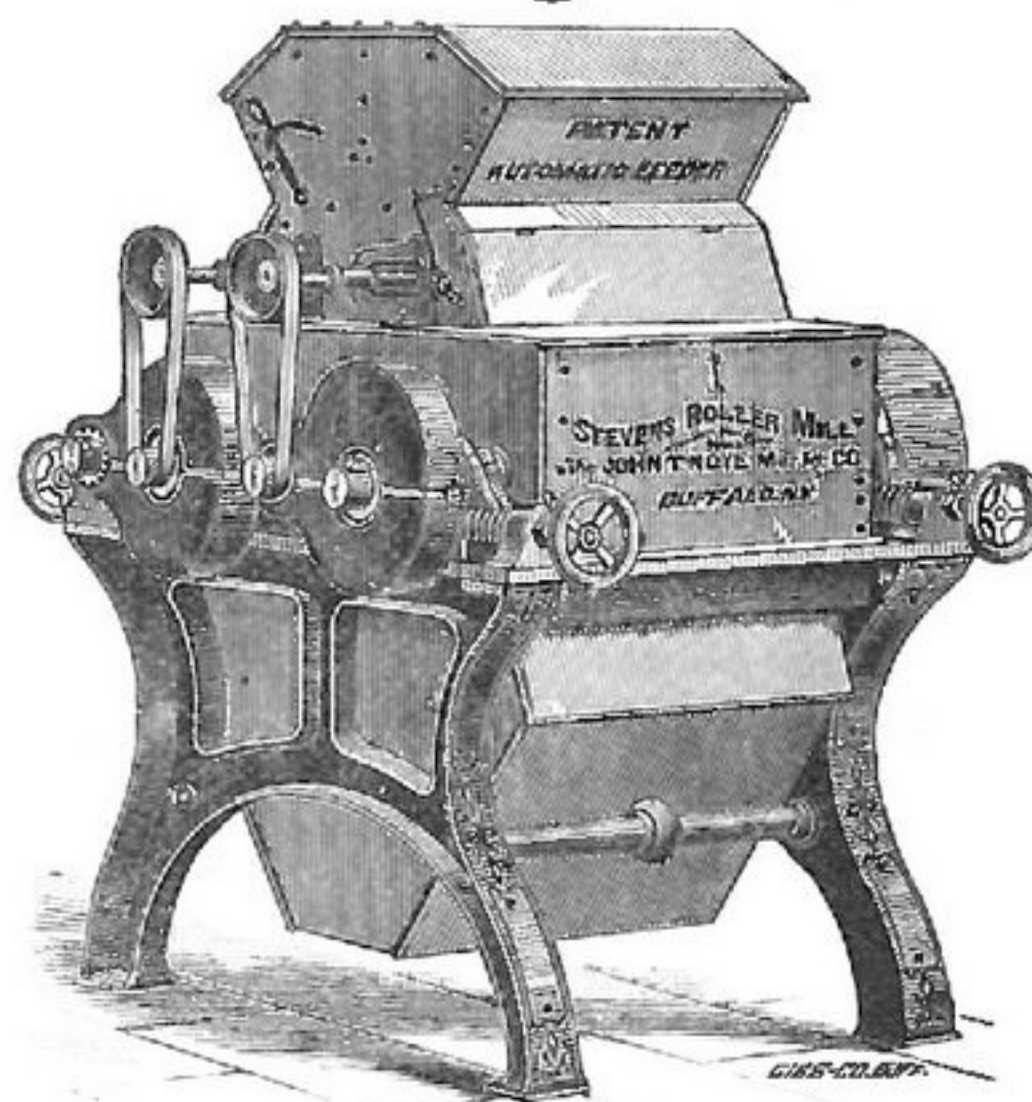
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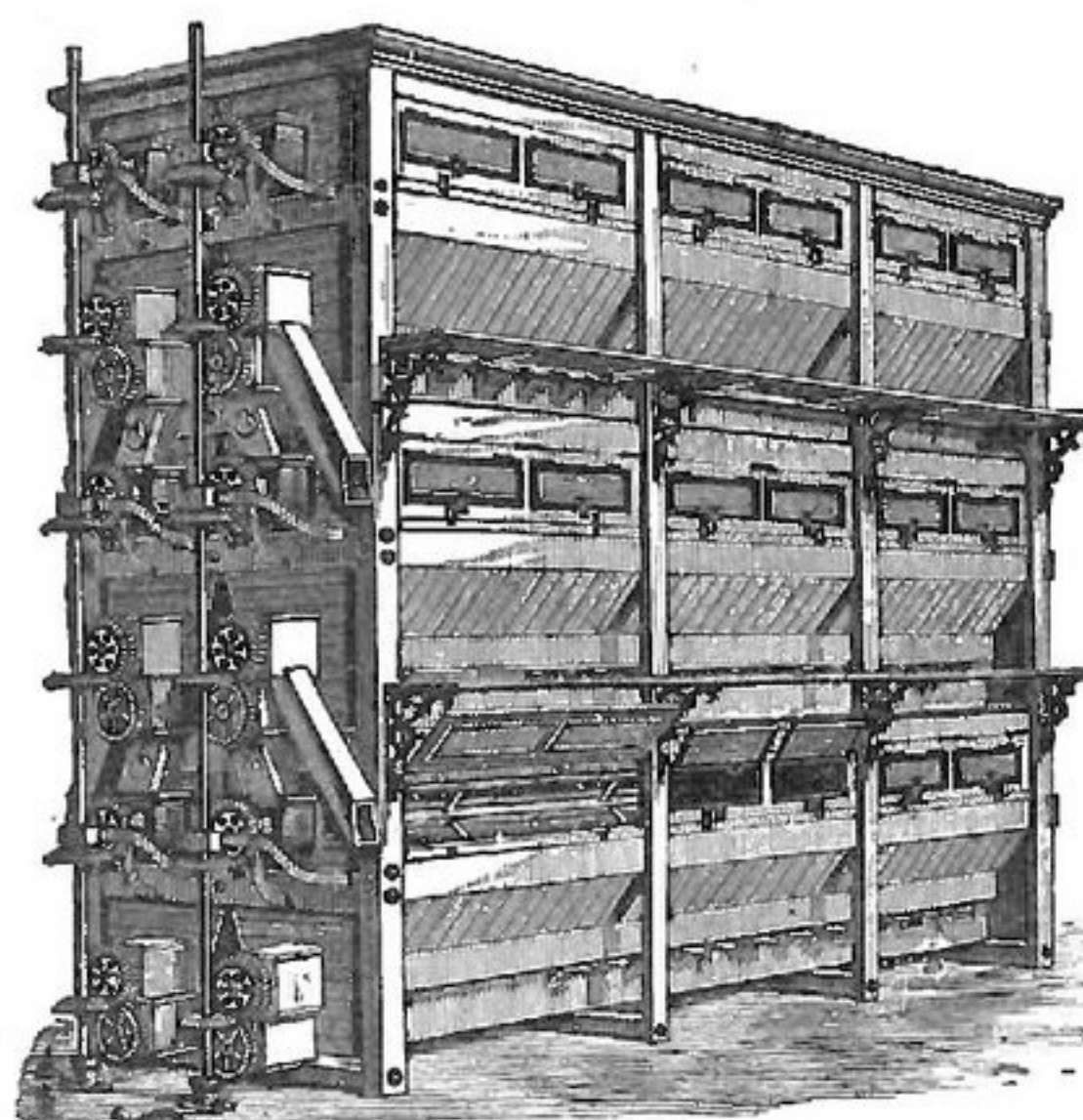
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